

DT05 Rec'd PCT/PTO 01 OCT 2004

SEQLIST

SEQUENCE LISTING

<110> SmithKline Beecham Corporation

<120> Hepatitis C Virus Sub-Genomic Replicons

<130> P51335

<140> PCT/US02/10177

<141> 2003-04-03

<150> 60/369,685

<151> 2002-04-03

<160> 54

<170> FastSEQ for windows Version 4.0

<210> 1

<211> 225

<212> DNA

<213> Artificial sequence

<220>

<223> The nucleotide sequence encodes the first 75
contiguous N-terminal amino acids of HCV type 1b,
strain BB7

<400> 1

atggcgccta	ttacggccta	ctcccaacag	acgcgaggcc	tacttggtg	catcatcact	60
agcctcacag	gccgggacag	gaaccaggct	gagggggagg	tccaagtgg	ctccaccgca	120
acacaatctt	tcctggcgac	ctgcgtcaat	ggcgtgtgtt	ggactgtcta	tcatggtgac	180
ggctcaaaga	cccttgccgg	cccaaaggc	ccaatcacc	aaatg		225

<210> 2

<211> 7989

<212> DNA

<213> Artificial sequence

<220>

<223> The polynucleotide sequence encodes sequences from
HCV H77 (BB7-F1) Replicons

<400> 2

gccagcccc	gattgggggc	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgctcgtcag	cctccaggac	120
ccccctccc	gggagagcca	tagtggctct	cggaaaccgt	gagtacaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gatcaaccgc	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtgttggttc	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgcca	gtgccccggg	aggtctcgt	gaccgtgcac	catgagcacg	aatcctaaac	360
ctcaaagaaa	aaccaaagg	cgcgccatga	ttgaacaaga	tggattgcac	gcagggttctc	420
cggccgcttg	ggtggagagg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgccgc	cgtgttcggg	ctgtcagcgc	aggggcgccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgccctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgctac	tgaagcggga	agggactggc	660
tgctattggg	cgaagtggcg	gggcaggatc	tcctgtcatc	tcaccttgct	cctgcccaga	720
aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	gcttgatccg	gctaccctgc	780
cattcgacca	ccaagcgaaa	catcgcatcg	agcgagcacg	tactcggatg	gaagccggtc	840
ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttcg	900
ccaggctcaa	ggcgcgcgat	cccgcagcgc	aggatctcgt	cgtgacccat	ggcgtatgct	960
gcttgccgaa	tatcatgggtg	gaaaatggcc	gcttttcttg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cgttggtctac	ccgtgatatt	gctgaagagc	1080
ttggcggcga	atgggctgac	cgcttcctcg	tgctttacgg	tatcgccgct	cccgattcgc	1140
agcgcacgc	cttctatcgc	cttcttgacg	agttcttctg	agtttaaac	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tgggaataagg	ccggtgtgcg	tttgtctata	tgttattttc	caccatattg	1320

SEQLIST

ccgtctttttg	gcaatgtgag	ggccccgaaa	cctggccctg	tcttcttgac	gagcattcct	1380
aggggtcttt	cccctctcgc	caaaggaatg	caaggtctgt	tgaatgtcgt	gaagggaagca	1440
gttcctcttg	aagcttcttg	aagacaaaca	acgtctgtag	cgaccctttg	caggcagcgg	1500
aacccccccac	ctggcgacag	gtgcctctgc	ggccaaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaaccccc	gtgccacgtt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggctctcct	caagcgtatt	caacaagggg	ctgaaggatg	cccagaaggt	acccatttgt	1680
atgggatctg	atctggggcc	tcgggtgcaca	tgctttacat	gtgttttagtc	gaggttaaaa	1740
aacgtctagg	ccccccgaac	cacggggacg	tggttttcct	ttgaaaaaca	cgataatacc	1800
atggcgcccta	ttacggcccta	ctcccaacag	acgcgagggc	tacttggtctg	catcatcact	1860
agcctcacag	gcccgggacag	gaaccagggtc	gagggggagg	tccaagtggg	ctccaccgca	1920
acacaatctt	tcctggcgac	ctgcgtcaat	ggcgtgtgtt	ggactgtcta	tcatggtgcc	1980
ggctcaaaga	cccttgccgg	cccaaagggc	ccaatcaccc	aaatgtacac	caatgtggac	2040
caagaccttg	tgggctggcc	cgctcctcaa	ggttcccgtc	cattgacacc	ctgtacctgc	2100
ggctcctcgg	acctttacct	ggtcacgagg	ccaccgcgatg	tcattcccgt	gcgccggcga	2160
ggtgatagca	ggggtagcct	gctttcgccc	cggcccatth	cctacttgaa	aggctcctcg	2220
gggggtccgc	tggtgtgccc	cgcgggacac	gccgtggggc	tattcagggc	cgcggtgtgc	2280
acccgtggag	tggctaaagc	ggtggacttt	atccctgtgg	agaacctagg	gacaaccatg	2340
agatccccgg	tggtcacgga	caactcctct	ccaccagcag	tgccccagag	cttcagggtg	2400
gcccacctgc	atgtctcccac	cggcagcggg	aagagcacca	agggtccggc	tgcgtagcga	2460
gcccagggtc	acaaggtggt	ggtgctcaac	ccctctgttg	ctgcaacgct	gggctttggg	2520
gcttacatgt	ccaaggccca	tggggttgat	cctaataatca	ggaccggggg	gagaacaatt	2580
accactggga	gccccatcac	gtactccacc	tacggcaagt	tccttgccga	cgcggggtgc	2640
tcaggaggtg	cttatgtacat	aataatttgt	gacgagtgcc	actccacgga	tgccacatcc	2700
atcttgggca	tcggcactgt	ccttgaccaa	gcagagactg	cgggggagag	actggttgtg	2760
ctcgccactg	ctacccctcc	gggctccgtc	actgtgtccc	atcctaacat	cgaggaggtt	2820
gctctgtcca	ccaccggaga	gatccccctt	tacggcaagg	ctatccccct	cgagggtgatc	2880
aaggggggaa	gacatctcat	cttctgcccac	tcaaagaaga	agtgcgacga	gctcgccgcg	2940
aagctggctg	cattgggcat	caatggccgtg	gcctactacc	gcggtcttga	cggtctgttc	3000
atcccgaacca	gcggcgatgt	tgctcgtcgtg	tcgaccgatg	ctctcatgac	tggctttacc	3060
ggcgacttcg	actctgtgat	agactgcaac	acgtgtgtca	ctcagacagt	cgatttcagc	3120
cttgacccta	cctttaccat	tgagacaacc	acgtccccc	aggatgctgt	ctccaggact	3180
caacgcgggg	caggactggg	caggggggaag	ccaggcatct	atagatttgt	ggcaccgggg	3240
gagcgccctt	ccggcatggt	cgactcgtcc	gtcctctgtg	agtgtctatga	cgcgggctgt	3300
gcttggtatg	agctcacgcc	cgccgagact	acagttaggc	tacgagcgta	catgaacacc	3360
ccggggcttc	ccgtgtgcca	ggaccatctt	gaattttggg	agggcgctct	tacgggcctc	3420
actcatatag	atggcccact	tttatcccg	acaaagcaga	gtggggagaa	ctttccttac	3480
ctggtagcgt	accaagccac	cggtgtcgct	agggctcaag	ccccctcccc	atcgtggggac	3540
cagatgtgga	agtgtttgat	ccgccttaaa	cccaccctcc	atgggccaac	acccctgcta	3600
tacagactgg	gcgctgttca	gaatgaagtc	accctgacgc	acccaatcac	caaatacatc	3660
atgacatgca	tgtcggccga	cctggagggtc	gtcacgagca	cctgggtgct	cgttggcggc	3720
gtcctggctg	ctctggccgc	gtattgccc	tcaaggcgt	gcgtgggtcat	agtgggcagg	3780
atcgtcttgt	ccgggaagcg	ggcaattata	cctgacaggg	aggttctcta	ccaggagttc	3840
gatgagatgg	aagagtgtct	tcagcactta	ccgtacatcg	agcaagggat	gatgtctcgt	3900
gagcagttca	agcagaaggc	cctcggcctc	ctgcagaccg	cgtcccgcga	tgcaagggtt	3960
atcacccctc	ctgtccagac	caactggcag	aaactcgagg	tcttttgggg	gaagcacatg	4020
tggaaatttca	tcagtgggat	acaatacttg	cgggccctgt	caacgctgcc	tggtaacccc	4080
gccattgctt	cattgatggc	ttttacagct	gccgtcacca	gcccactaac	cactggccaa	4140
accctcctct	tcaacatatt	gggggggtgg	gtggctgccc	agctcgccgc	ccccggtgcc	4200
gctactgcct	ttgtgggtgc	tggcctagct	ggcgccgcga	tcggcagcgt	tggactgggg	4260
aagtgactcg	tggacattct	tgaggggtat	ggcgggggcg	tggcgggagc	tcttgtagca	4320
ttcaagatca	tgagcgggtga	ggtccccctc	acggaggacc	tgggtcaatct	gctgcccggc	4380
atcctctcgc	ctggagccct	tgtagtcggt	gtggtctgcg	cagcaatact	gcgccggcac	4440
gttgggcccg	gcgagggggc	agtgcaatgg	atgaaccggc	taatagcctt	cgctctcccg	4500
gggaaccatg	tttccccccac	gcactacgtg	ccggagagcg	atgcagccgc	ccgcgtcact	4560
gccataactca	cgaccctcac	tgtaaccctag	ctcctgaggc	gactgcatca	gtggataaag	4620
tcggagtgta	ccactccatg	ctccggttcc	tggctaaggg	acatctggga	ctggatatgc	4680
gaggtgctga	gcgactttaa	gacctggctg	aaagccaagc	tcatgccaca	actgcctggg	4740
attccctttg	tgtcctgcca	gcgcgggtat	aggggggtct	ggcgaggaga	cggcattatg	4800
cacactcgct	gccactgtgg	agctgagatc	atggagacatg	tcaaaaacgg	gacgatgagg	4860
atcgtcggtc	ctaggacctg	caggaacctg	tggagtggga	cgttccccat	taacgcctac	4920
accacgggcc	cctgtactcc	ctttcctgcg	ccgaactata	agttcgcgct	gtggaggggtg	4980
tctgcagagg	aatacgtgga	gataaaggcg	gtgggggact	tccactacgt	atcgggtatg	5040
actactgaca	atctttaaag	cccgtgccag	atccccatcg	ccgaattctt	cacagaagtg	5100
gatgggggtg	ggttgccacag	gtacgctcca	gcgtgcaaac	ccctcctacg	ggaggagggtc	5160
acattcctgg	tcgggctcaa	tcaataacctg	gttgggtcac	agctcccatg	cgagcccgaa	5220
ccggacgtag	cagtgtcac	ttccatgctc	accgacccct	cccacattac	ggcgagagacg	5280
gctaagcgta	ggctggccag	gggatctccc	ccctccttgg	ccagctcatc	agctatccag	5340
ctgtctgcgc	cttccttgaa	ggcaacatgc	actaccgctc	atgactcccc	ggacgctgac	5400

SEQLIST

ctcatcgagg	ccaacctcct	gtggcggcag	gagatgggag	ggaacatcac	ccgcgtggag	5460
tcagaaaata	aggtagtaat	tttggactct	ttcagagccg	tccaagcgga	ggaggatgag	5520
agggaaagat	ccgtttccgg	ggagatcctg	cggaggtcca	ggaaattccc	tcgagcgatg	5580
cccatatggg	cacgcccggg	ttacaacctt	ccactgttag	agtcctggaa	ggacccggac	5640
tacgtccctc	cagtgggtaca	cgggtgtcca	ttgccgcctg	ccaaggcccc	tccgatacca	5700
cctccacgga	ggaagaggac	ggttgtcctg	tcagaatcta	ccgtgtcttc	tgccttggcg	5760
gagctcgcca	caaagacctt	cggcagctcc	gaatcgctcg	ccgtcgacag	cggcacggca	5820
acggcctctc	ctgaccagcc	ctccgacgac	ggcgacgcgg	gatccgacgt	tgagtcgtac	5880
tcctccatgc	cccccttga	gggggagccg	ggggatcccg	atctcagcga	cgggtcttgg	5940
tctaccgtaa	gcgaggaggc	tagtgaggac	gtcgtctgct	gctcgatgtc	ctacacatgg	6000
acaggcgccc	tgatcacgcc	atgcgctgcg	gaggaaacca	agctgcccac	caatgcactg	6060
agcaactctt	tgctccgtca	ccacaacttg	gtctatgcta	caacatctcg	cagcgcaagc	6120
ctgcggcaga	agaaggtcac	ctttgacaga	ctgcaggtcc	tggacgacca	ctaccgggac	6180
gtgctcaagg	agatgaaggc	gaaggcgtcc	acagttaagg	ctaaacttct	atccgtggag	6240
gaagcctgta	agctgacgcc	cccacattcg	gccagatcta	aattttggcta	tggggcaaa	6300
gacgtccgga	acctatccag	caaggccgtt	aaccacatcc	gctccgtgtg	gaaggacttg	6360
ctggaagaca	ctgagacacc	aattgacacc	accatcatgg	caaaaaatga	ggttttctgc	6420
gtccaaccag	agaagggggg	ccgcaagcca	gctgccttta	tcgtattccc	agatttgggg	6480
gttcgtgtgt	gcgagaaaat	ggccctttac	gatgtggtct	ccaccctccc	tcaggccgtg	6540
atgggctctt	catacggatt	ccaatactct	cctggacagc	gggtcgagtt	cctggtgaat	6600
gcctggaaag	cgaagaaatg	ccctatgggc	ttcgcataat	acaccgcgtg	ttttgactca	6660
acggctcact	agaatgacat	ccgtgttgag	gagtcaatct	accaaattgt	tgacttggcc	6720
cccgaagcca	gacaggccat	aaggctcgctc	acagagcggc	tttacatcgg	ggggccctcg	6780
actaatctta	aagggcagaa	ctgcggctat	cgccggtgcc	gcgcgagcgg	tgtactgacg	6840
accagctgcg	gtaataccct	cacatgttac	ttgaaggccg	ctgcggcctg	tcgagctgcg	6900
aagctccagg	actgcacgat	gctcgtatgc	ggagacgacc	ttgtcgttat	ctgtgaaagc	6960
gcggggaccc	aagaggacga	ggcgagccta	cgggccttca	cggaggctat	gactagatac	7020
tctgcccccc	ctggggaccc	gccccaaacca	gaatacgact	tggagttgat	aacatcatgc	7080
tcctccaatg	tgtcagtcgc	gcacgatgca	tctggcaaaa	gggtgtacta	tctcaccctg	7140
gacccccacca	cccccttgc	gcgggctgcg	tgggagacag	ctagacacac	tccagtcaat	7200
tcctggctag	gcaacatcat	catgtatgcg	cccaccttgt	gggcaaggat	gatcctgatg	7260
actcatttct	tctccatcct	tctagctcag	gaacaacttg	aaaaagccct	agattgtcag	7320
atctacgggg	cctgttactc	cattgagcca	cttgacctac	ctcagatcat	tcaacgactc	7380
catggcctta	gcgcattttc	actccatagt	tactctccag	gtgagatcaa	taggggtggc	7440
tcattgcctca	ggaaacttgg	ggtaccgccc	ttgcgagtct	ggagacatcg	ggccagaagt	7500
gtccgcgcta	ggctactctg	ccaggggggg	aggctgccta	cttgtggcaa	gtacctcttc	7560
aactgggcag	taaggaccaa	gctcaaaactc	actccaatcc	cggctgcgtc	ccagttggat	7620
ttatccagct	ggttcgttgc	tggttacagc	gggggagaca	tatatcacag	cctgtctcgt	7680
gcccgaaccc	gctggttcat	gtggtgccta	ctcctacttt	ctgtaggggt	aggcatctat	7740
ctactcccca	accgatgaac	ggggacctaa	acactccagg	ccaataggcc	atcctgtttt	7800
tttccctttt	tttttttctt	tttttttttt	tttttttttt	tttttttttt	ttctcctttt	7860
tttttctctt	ttttttcctt	ttctttcctt	tgggtggctcc	atcttagccc	tagtcacggc	7920
tagctgtgaa	aggtccgtga	gccgcttgac	tgcagagagt	gctgatactg	gcctctctgc	7980
agatcaagt						7989

<210> 3

<211> 7992

<212> DNA

<213> Artificial sequence

<220>

<223> Thepolynucleotide sequence encodes sequences from
HCV H77(BB7-F1/F2) Replicons

<400> 3

gccagccccc	gattgggggg	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgtcgtgcag	cctccaggac	120
ccccctccc	gggagagcca	tagtgggtctg	cggaaaccgt	gagtacaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gatcaaccgc	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtgttggggtc	gcgaaaggcc	ttgttggtact	gcctgatagg	300
gtgcttgcca	gtgccccggg	aggtctctga	gaccgtgcac	catgagcacg	aatcctaacc	360
ctcaaagaaa	aaccaaaggg	cgcgccatga	ttgaacaaga	tggattgcac	gcaggttctc	420
cggccgcttg	ggtggagagg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgccgc	cgtgttccgg	ctgtcagcgc	aggggcgccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgccctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgtcac	tgaagcggga	agggactggc	660

SEQLIST

tgctattggg	cgaagtgcgc	gggcaggatc	tcctgtcatc	tcaccttgct	cctgccgaga	720
aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	gcttgatccg	gctacctgcc	780
cattcgacca	ccaagcgaaa	catcgcatcg	agcgagcacg	tactcggatg	gaagccgggtc	840
ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttcg	900
ccaggctcaa	ggcgcgcatg	cccgcgcgcg	aggatctcgt	cgtgacctat	ggcgatgcct	960
gcttgccgaa	tatcatgggtg	gaaaatggcc	gcttttctg	attcatcgac	tgtggccggc	1020
tggtgtggc	ggaccgctat	caggacatag	cgttggctac	ccgtgatatt	gctgaagagc	1080
ttggcgcgga	atgggctgac	cgcttctctg	tgctttacgg	tatcgccgct	cccgatctgc	1140
agcgcatcgc	cttctatcgc	cttcttgacg	agttcttctg	agtttaaaca	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tgggaataagg	ccggtgtgcg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttg	gcaatgtgag	ggcccggaaa	cctggccctg	tcttcttgac	gagcatctct	1380
aggggtcttt	cccctctcgc	caaaggaatg	caaggtctgt	tgaatgtcgt	gaaggaagca	1440
gttccctctg	aagcttcttg	aagacaaaca	agctctgtag	cgaccctttg	caggcagcgg	1500
aacccccac	ctggcgacag	gtgcctctgc	ggccaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaacccca	gtgccacggt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggtctctct	caagcgtatt	caacaagggg	ctgaaggatg	cccagaagg	accccatgtg	1680
atgggatctg	atcttggggc	tcggtgcaca	tgctttacat	gtgttttagt	gaggttaaaa	1740
aagctctagg	cccccgaa	cacggggacg	tggttttctt	ttgaaaaaca	cgataatacc	1800
atggcgctta	ttacggccta	ctcccaacag	acgcgaggcc	tacttggtcg	catcatcact	1860
agcctcacag	gccgggacag	gaaccagggt	gagggggagg	tccaagtgg	ctccaccgca	1920
acacaatctt	tcctggcgac	ctgcgtcaat	ggcgtgtgtt	ggactgtcta	tcatggtgcc	1980
ggctcaaaga	cccttgcgcg	cccaaaggcc	ccaatcaccc	aaatgtacac	caatgtggag	2040
caagaccttg	tggtctggcc	cgctcctcaa	ggttcccgct	cattgacacc	ctgtacctgc	2100
ggctcctcgg	acctttacct	ggtcacgagg	cacgccgatg	tcattcccgt	gcgccggcga	2160
ggtgatagca	ggggtagcct	gctttcgccc	cgccccatgt	cctacttgaa	aggctcctcg	2220
gggggtccgc	tggtgtgccc	cgcgggacac	gccgtggggc	tattcagggc	cgcggtgtgc	2280
accggtggag	tggtctaaag	gggtgacttt	atccctgtgg	agaacctagg	gacaacctag	2340
agatccccgg	tggtcacgga	caactcctct	ccaccagcag	tgccccagag	cttccagggtg	2400
gcccacctgc	atgctcccac	cggcagcggt	aagagcacca	aggtcccggc	tgcgtagcga	2460
gcccagggct	acaaggtggt	ggtgctcaac	ccctctgttg	ctgcaacgct	gggcttttgt	2520
gcttacatgt	ccaaggccca	tggggttgat	cctaataatca	ggaccgggg	gagaacaatt	2580
accactggca	gccccatcac	gtactccacc	tacggcaagt	tccttgccga	cgccgggtgc	2640
tcaggagggtg	cttatgacat	aataatttgt	gacgagtgcc	actccacgga	tgccacatcc	2700
atcttgggca	tcggcactgt	ccttgaccac	gcagagactg	cgggggcgag	actggttgtg	2760
ctcgccactg	ctacccctcc	gggctccgct	actgtgtccc	atcctaaccat	cgaggagggt	2820
gctctgtcca	ccaccggaga	gatccccctt	tacggcaagg	ctatccccct	cgagggtgat	2880
aaggggggaa	gacatctcat	cttctgccac	tcaaagaaga	agtgcgacga	gctcgccgcg	2940
aagctggtcg	cattgggcat	caatgccgtg	gcctactacc	gcggtcttga	cgtgtctgtc	3000
atccccacca	gcggcgatgt	tgctcgtcgt	tcgaccgatg	ctctcatgac	tggttttacc	3060
ggcgacttcg	actctgtgat	agactgcaac	acgtgtgtca	ctcagacagt	cgatttcagc	3120
cttgacccta	ccctttaccat	tgagacaacc	acgtccccc	aggatgctgt	ctccaggact	3180
caacgccggg	gcaggactgg	caggggggag	ccaggcatct	atagatttgt	ggcaccgggg	3240
gagcgccctt	ccggcatgtt	cgactcgtcc	gtcctctgtg	agtgtatga	cgcgggctgt	3300
gcttgggatg	agctcacgcc	cgccgagact	acagttaggc	tacgagcgta	catgaacacc	3360
ccggggcttc	ccgtgtgcca	ggaccatctt	gaattttggg	agggcgctct	tacgggcttc	3420
actcatatag	atgcccactt	tttatcccag	aaaagcaga	gtggggagaa	ctttccttac	3480
ctggtagcgt	accaagccac	cgtgtgcgct	agggctcaag	ccccccccc	atcgtgggac	3540
cagatgtgga	agtgtttgat	ccgccttaaa	cccaccctcc	atggggccaac	acccctgcta	3600
tacagactgg	gcgctgttca	gaatgaagtc	accctgacgc	acccaatcac	caaatacatc	3660
atgacatgca	tgctcgccga	cctggagggt	gtcacgagca	cctgggtgct	cgttggcggc	3720
gtcctggctg	ctctggccgc	gtattgcctg	tcaacaggct	gcgtgggtcat	agtgggcagg	3780
atcgtcttgt	ccgggaagcc	ggcaattata	cctgacaggg	aggttctcta	ccaggagtct	3840
gatgagatgg	aagagtgtct	tcagcactta	ccgtacatcg	agcaagggat	gatgtctcgt	3900
gagcagttca	agcagaaggc	cctcggcctc	ctgcagaccg	cgtcccggca	tgagagggtt	3960
atcacccctg	ctgtccagac	caactggcag	aaactcgagg	tcttttgggg	gaagcacatg	4020
tggaattttca	tcagtgggat	acaatacttg	gcgggcctgt	caacgctgcc	tggttaacccc	4080
gccattgctt	cattgatggc	ttttacagct	gccgtcacca	gcccactaac	cactggccaa	4140
accctcctct	tcaacatatt	gggggggtgg	gtggctgccc	agctcgccgc	ccccgggtgc	4200
gctactgcct	ttgtgggtgc	tgcccttagct	ggcgccgcca	tcggcagcgt	tggaactggg	4260
aaggtccctg	tgacattctt	tgaggggtat	ggcgggggcg	tgggcgggagc	tcttgtagca	4320
ttcaagatca	tgagcgggtga	ggtccctctc	acggaggacc	tggtcaatct	gctgcccggc	4380
atcctctcgc	ctggagccct	tgtagtcggt	gtggtctgcg	cagcaatact	gcgccggcac	4440
gttggcccg	gcgagggggc	agtgcaatgg	atgaaccggc	taatagcctt	cgccctcccg	4500
gggaaccatg	tttccccac	gcactacgtg	ccggagagcg	atgcagccgc	ccgcgtcact	4560
gccatactca	gcagcctcac	tgtaaccag	ctcctgaggc	gactgcatca	gtggataagc	4620
tcggagtgtg	ccactccatg	ctccgggttc	tggtcaaggg	acatctggga	ctggatatgc	4680
gaggtgctga	gcgactttaa	gacctggctg	aaagccaagc	tcatgccaca	actgcctggg	4740

SEQLIST

attccctttg	tgtcctgcc	gcgcgggtat	aggggggtct	ggcgaggaga	cggcattatg	4800
cacactcgct	gccactgtgg	agctgagatc	actggacatg	tcaaaaacgg	gacgatgagg	4860
atcgtcggtc	ctaggacctg	caggaacatg	tggagtggga	cgttcccat	taacgcctac	4920
accacgggccc	cctgtactcc	ccttcctgcg	ccgaactata	agttcgcgct	gtggagggtg	4980
tctgcagagg	aataagctga	gataaggcgg	gtgggggact	tccactacgt	atcgggtatg	5040
actactgaca	atctttaaag	cccgtgccag	atcccatcgc	ccgaattctt	cacagaattg	5100
gacgggggtgc	gcctacacag	gtttgcgccc	ccttgcaagc	ccttgctgcg	ggaggaggta	5160
tcattcagag	taggactcca	cgagtacccg	gtgggggtcgc	aattaccttg	cgagcccga	5220
ccggacgtag	ccgtgttgac	gtccatgctc	actgatccct	cccatataac	agcagaggcg	5280
gccgggagaa	ggttggcgag	agggtcaccc	ccttctatgg	ccagctcctc	ggctatccag	5340
ctgtccgctc	catctctcaa	ggcaacttgc	accgccaacc	atgactcccc	tgacgccgag	5400
ctcatagagg	ctaacctcct	gtggaggcag	gagatgggcg	gcaacatcac	caggggttag	5460
tcagagaaca	aagtgggtat	tctggactcc	ttcgatccgc	ttgtggcaga	ggaggatgag	5520
cgggaggtct	ccgtacctgc	agaaattctg	cggaagtctc	ggagattcgc	ccgggccctg	5580
cccgtctggg	cgcgcccgga	ctacaacccc	ccgctagtag	agacgtggaa	aaagcctgac	5640
tacgaaccac	ctgtggtcca	tggtgccccg	ctaccacctc	cacgggtccc	tcctgtgcct	5700
ccgcctcggg	aaaagcgtat	ggtggtcctc	accgaatcaa	ccctatctac	tgccctggcc	5760
gagcttgcca	ccaaaagtgt	tggcagctcc	tcaacttccg	gcattacggg	gcacaatag	5820
acaacatcct	ctgagcccgc	cccttctggc	tgccccccgc	actccgacgt	tgagtcctat	5880
tcttccatgc	cccccttggg	gggggagcct	ggggatccgg	atctcagcga	cgggtcatgg	5940
tcgacggtca	gtagtggggc	cgacacggaa	gatgtcgtgt	gctgtcfaat	gtcttattcc	6000
tggacaggcg	cactcgtcac	cccgtgcgct	gcggaagaac	aaaaactgcc	catcaacgca	6060
ctgagcaact	agttgtacag	ccatcacaat	ctgggtgatt	ccaccacttc	acgcagtgtc	6120
tgccaaaggc	agaagaaagt	cacatttgac	agactgcaag	ttctggacag	ccattaccag	6180
gacgtgtcca	aggaggtcaa	agcagcggcg	tcaaaagtga	aggctaactt	gctatccgta	6240
gaggaagctt	gcagcctgac	gccccacat	tcagccaaat	ccaagtttgg	ctatggggca	6300
aaagacgtcc	gttgccatgc	cagaaaggcc	gtagcccaca	tcaactccgt	gtggaaagac	6360
cttctggaag	acagtgtaac	accaattgac	accaccatca	tgggcaaaaa	tgaggttttc	6420
tgcttccaac	cagagaaggg	gggccgcaag	ccagctcgcc	ttatcgtatt	cccagatttg	6480
ggggttcgtg	tgtgcgagaa	aatggccctt	tacgatgtgg	tctccaccct	ccctcaggcc	6540
gtgatgggct	cttcatacgg	attccaatat	tctcctggac	agcgggtcga	gttcctgggt	6600
aatgccttga	aagcgaagaa	atgccctatg	ggcttgcgat	atgacaccgc	ctgttttgac	6660
tcaacggtca	ctgagaatga	catccgtgtt	gaggagtcaa	tctaccaatg	ttgtgacttg	6720
gccccgaag	ccagacaggc	cataaggctc	ctcacagagc	ggctttacat	cggggggccc	6780
ctgactaatt	ctaaagggca	gaactgcggc	tatcgccggt	gcccgcgcgag	cgggtgactg	6840
acgaccagct	gcggtaatat	cctcacatgt	tacttgaagg	ccgctgcggc	ctgtcgagct	6900
gcgaagctcc	aggactgcac	gatgctcgta	tgcgagagac	accttgtcgt	tatctgtgaa	6960
agcgcgggga	cccaagagga	cgaggcgagc	ctacgggcct	tcacggaggc	tatgactaga	7020
tactctgccc	cccctgggga	cccgcacgat	ccagaatacg	acttgagggt	gataacatca	7080
tgctcctcca	atgtgtcagt	cgcgacgat	gcattctggca	aaagggtgta	ctatctcacc	7140
cgtgacccca	ccacccctct	tgcgcgggct	gcgtgggaga	cagctagaca	cactccagtc	7200
aattcctggc	taggcaacat	catcatgtat	gcgcccacct	tggtgggcaag	gatgatcctg	7260
atgactcatt	tcttctccat	ccttctagct	caggaacaac	ttgaaaaagc	cctagattgt	7320
cagatctacg	gggcctgtta	ctccattgag	ccacttgacc	tacctcagat	cattcaacga	7380
ctccatggcc	ttagcgcatt	ttcactccat	agttactctc	caggtgagat	caatagggtg	7440
gcttcattgc	tcaggaaact	tggggtaccg	cccttgcgag	tctggagaca	tcggggccaga	7500
agtgtccgcg	ctaggctact	gtcccagggg	gggagggtcg	ccacttgtgg	caagtacctc	7560
ttcaactggg	cagtaaggac	caagctcaaa	ctcactccaa	tcccggctgc	gtcccagttg	7620
gatttatcca	gctggttcgt	tgctggttac	agcgggggag	acatatatca	cagcctgtct	7680
cgtgcccgcg	cccgtggtt	catgtggtgc	ctactcctac	tttctgtagg	ggtaggcac	7740
tatctactcc	ccaaccgatg	aacggggacc	taaacactcc	aggccaatag	gccatcctgt	7800
ttttttccct	tttttttttt	cttttttttt	tttttttttt	tttttttttt	tttttctcct	7860
ttttttttcc	tctttttttt	cttttctttt	ctttggtggc	tccatcttag	ccctagtcac	7920
ggctagctgt	gaaaggtccg	tgagccgctt	gactgcagag	agtgtctgata	ctggcctctc	7980
tcgagatcaa	gt					7992

<210> 4

<211> 7980

<212> DNA

<213> Artificial sequence

<220>

<223> Thepolynucleotide sequence encodes sequences from
HCV H77(BB7-F3)Replicons

<400> 4

SEQLIST

gccagcccc	gattgggggc	gacactccac	catagatcac	tccccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgtcgtgcag	cctccaggac	120
ccccctccc	gggagagcca	tagtggctctg	cggaaccggt	gagtacaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gatcaaccgc	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtgttggttc	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgca	gtgccccggg	aggctctgta	gaccgtgcac	catgagcacg	aatcctaaac	360
ctcaaagaaa	aaccaaaagg	cgcgccatga	ttgaacaaga	tggattgcac	gcagggtctc	420
cggccgcttg	ggtggagagg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgccgc	cgtgttccgg	ctgtcagcgc	aggggcgccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgccctgaat	gaactgcagg	acgagcgagc	gcggctatcg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgtcac	tgaagcggga	agggactggc	660
tgctattggg	cgaagtgcgg	gggcaggatc	tcctgtcatc	tcaccttgct	cctgcccaga	720
aagtatccat	catggctgat	gcaatgcggc	ggtgtcatat	gcttgatccg	gctacctgcc	780
cattcgacca	ccaagcgaaa	catcgcatcg	agcgagcacg	tactcggatg	gaagccggtc	840
ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttcg	900
ccaggctcaa	ggcgcgcgat	cccgcaggcg	aggatctcgt	cgtgaccat	ggcgtgcct	960
gcttgccgaa	tatcatgggtg	gaaaatggcc	gcttttctgg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cgttggtac	ccgtgatatt	gctgaagagc	1080
ttggcggcga	atgggctgac	cgcttctcgt	tgctttacgg	tatcgccgct	cccgatctgc	1140
agcgcacgc	cttctatcgc	cttcttgacg	agttcttctg	agtttaaaac	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tggaaataagg	ccggtgtgcg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttg	gcaatgtgag	ggcccggaaa	cctggccctg	tcttcttgac	gagcattcct	1380
aggggtcttt	ccccctcgcg	caaaggaatg	caaggctctg	tgaatgtcgt	gaaggaagca	1440
gttctctctg	aagcttcttg	aagacaaaca	acgtctgtag	cgaccctttg	caggcagcgg	1500
aacccccac	ctggcgacag	gtgcctctgc	ggccaaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaaccccc	gtgccacggt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggctctcct	caagcgatatt	caacaagggg	ctgaaggatg	cccagaagg	accccatgtg	1680
atgggatctg	atctggggcc	tcggtgcaca	tgctttacat	gtgtttagtc	gagggttaaaa	1740
aacgtctagg	ccccccgaac	cacggggacg	tggttttctt	ttgaaaaaca	cgataatacc	1800
atggcgccca	ttacggccca	ctcccaacag	acgcgaggcc	tacttggtcg	catcatcact	1860
agcctcacag	gcccggagacg	gaaccaggct	gagggggagg	tccaagtgg	ctccaccgca	1920
acacaactct	tcctggcgag	ctgcgtcaat	ggcgtgtgtt	ggactgtcta	tcatggtgcc	1980
ggctcaaaga	cccttgccgg	cccaaagggc	ccaatcacc	aaatgtacac	caatgtggac	2040
caggacctcg	tcggctggca	agcgcccccc	ggggcgcggt	ccttgacacc	atgcacctgc	2100
ggcagctcgg	acctttactt	ggtcacgagg	catggccgat	tcattccggt	gcgcccggcg	2160
ggcgacagca	gggggagcct	actctcccc	aggcccgct	cctacttgaa	gggctcttcg	2220
ggcgggtccac	tgctctgccc	ctcggggcac	gctgtgggca	tctttcgggc	tgccgtgtgc	2280
acccgagggg	ttgcgaaggc	ggtggacttt	gtacccgtcg	agtctatgga	aaccactatg	2340
cgggtccccg	tcttcacgga	caactcgtcc	cctccggccg	taccgcagac	attccagggtg	2400
gccccactac	acgccccctac	tggtagcggc	aagagcacta	agggtgccgg	tgcgtagtga	2460
ggccaaagggt	ataagggtgct	tgctctgaac	ccgtccgtcg	ccgccaccct	agggtttcgg	2520
gcgtatatgt	ctaaggcaca	tggtatcgac	cctaacatca	gaaccgggg	aaggaccatc	2580
accacgggtg	cccccatcac	gtactccacc	tatggcaagt	ttcttgccga	cgggtggttc	2640
tctggggggc	cctatgacat	cataatatgt	gatgagtgcc	actcaactga	ctcgaccact	2700
atcctgggca	ctggcacagt	cctggaccac	gcccagagcg	ctggagcgcg	actcgtctgt	2760
ctcgccaccg	ctacgcctcc	gggatcggtc	acggtgccac	atccaaacat	cgaggagggtg	2820
gctctgtcca	gcactggaga	aatccccctt	tatggcaaag	ccatccccat	cgagaccatc	2880
aaggggggga	ggcacctcat	tttctgccat	tccaagaaga	aatgtgatga	gctcgccgcg	2940
aagctgtccg	gcctcggact	caatgctgta	gcataattacc	ggggccttga	tgtatccgtc	3000
ataccaacta	cgggagacgt	cattgtcgta	gcaacgggac	ctctaattgac	gggctttacc	3060
ggcgatttcg	actcagtgat	cgactgcaat	acatgtgtca	cccagacagt	cgacttcagc	3120
ctggacccca	ccttcaccat	tgagacgacg	accgtgccac	aagacgcgg	gtcacgctcg	3180
cagcggcgag	gcaggactgg	taggggcagg	atgggcattt	acaggtttgt	gactccagga	3240
gaacggccct	cgggcatggt	cgattcctcg	gttctgtgcg	agtgtctatga	cgcgggctgt	3300
gcttggtacg	agctcacgcc	cgccgagacc	tcagttagg	tgcgggctta	cctaaacaca	3360
ccagggttgc	ccgtctgcca	ggaccatctg	gagttctggg	agagcgtctt	tacaggcctc	3420
acccacatag	acgcccattt	cttggtcccg	actaagcagg	caggagacaa	cttccccctac	3480
ctggtagcat	accaggctac	ggtgtgcgcc	agggctcagg	ctccacctcc	atcgtgggac	3540
caaagtgtga	agggtctcat	acggctaaag	ctacagctgc	acggggccaac	gcccctgctg	3600
tataggcttg	gagccgttca	aaacgaggtt	actaccacac	accccataac	caaatacatc	3660
atggcatgca	tgtcggctga	cctggagggtc	gtcacgagca	cctgggtgct	ggtaggcgga	3720
gtcctagcag	ctctggccgc	gtattgcctg	acaacaggca	gcgtggtcat	tgtgggcagg	3780
atcatcttgt	ccggaaagcc	ggccatcatc	cccagacagg	aagtccttta	ccgggagttc	3840
gatgagatgg	aagagtgcgc	ctcacacctc	ccttacatcg	aacagggaat	gcagctcgcc	3900
gaacaattca	aacagaaggc	aatcgggttg	ctgcaaacag	ccaccaagca	agcggagggt	3960
gctgctcccg	tgggtggaatc	caagtggcgg	accctcgaag	ccttctgggc	gaagcatatg	4020
tggaatttca	tcagcgggat	acaatattta	gcaggcttgt	ccactctgcc	tggcaacccc	4080

SEQLIST

gcgatagcat	caactgatggc	attcacagcc	tctatcacca	gcccgcctac	cacccaacat	4140
accctcctgt	ttaacatcct	ggggggatgg	gtggccgccc	aacttgctcc	tcccagcgct	4200
gcttctgctt	tcgtaggcgc	cggcacgcgt	ggagcggctg	ttggcagcat	aggccttggg	4260
aaggtgcttg	tggatatttt	ggcaggttat	ggagcagggg	tggcaggcgc	gctcgtggcc	4320
tttaagggtca	tgagcggcga	gatgccctcc	accgaggacc	tggttaacct	actccttgct	4380
atcctctccc	ctggcgccct	agtcgtcggg	gtcgtgtgcg	cagcgatact	gcgtcggcac	4440
gtggggccag	gggagggggc	tgtgcagtgg	atgaaccggc	tgatagcggt	cgcttcgcgg	4500
ggtaaccacg	tctccccac	gcactatgtg	cctgagagcg	acgctgcagc	acgtgtcact	4560
cagatcctct	ctagtcttac	catcactcag	ctgctgaaga	ggcttcacca	gtggatcaac	4620
gaggactgct	ccacgccatg	ctccggctcg	tggctaagag	atgtttggga	ttggatatgc	4680
acgggtgttg	ctgatttcaa	gacctggctc	cagtccaagc	tcctgccgcg	attgccggga	4740
gtcccccttct	tctcatgtca	acgtgggtac	aagggagtct	ggcggggcga	cggcacatcg	4800
caaaccacct	gccccatgtg	agcacagatc	accggacatg	tgaaaaacgg	ttccatgagg	4860
atcgtggggc	ctaggacctg	tagtaacacg	tggcatggaa	cattccccat	taacgcgtac	4920
accacggggc	cctgcacgcc	ctccccggcg	ccaaattatt	ctagggcgct	gtggcgggtg	4980
gctgctgagg	agtacgtgga	ggttacgcgg	gtgggggatt	tccactacgt	gacgggcatg	5040
accactgaca	acgtaaagtg	cccgtgtcag	gttccggccc	ccgaattctt	cacagaagtg	5100
gatgggggtgc	ggttgcacag	gtacgctcca	gcgtgcaaac	ccctcctacg	ggaggaggtc	5160
acattccttg	tcgggctcaa	tcaataacctg	gttgggtcac	agctcccatg	cgagcccgaa	5220
ccggacgtag	cagtgtcac	ttccatgctc	accgacccct	cccacattac	ggcggagacg	5280
gctaagcgta	ggctggccag	gggatctccc	ccctccttgg	ccagctcatc	agctatccag	5340
ctgtctgcgc	cttctctgaa	ggcaacatgc	actaccgcgc	atgactcccc	ggacgctgac	5400
ctcatcgagg	ccaacctcct	gtggcgcgag	gagatgggcy	ggaacatcac	ccgcgtggag	5460
tcagaaaata	aggtagtaat	tttggactct	ttcgagccgc	tccaagcggg	ggaggatgag	5520
agggaaagtat	ccgttccggc	ggagatcctg	cggaggtcca	ggaaattccc	tcgagcgatg	5580
cccatatggg	cacgcccggg	ttacaacctt	ccactgttag	agtcctggaa	ggacccggac	5640
tacgtccctc	cagtgtgata	cgggtgtcca	ttgccgcctg	ccaaggcccc	tccgatacca	5700
cctccacgga	ggaagaggac	ggttgtcctg	tcagaatcta	ccgtgtcttc	tgccctggcg	5760
gagctcgcca	caaagacctt	cggcagctcc	gaatcgctcg	ccgtcgacag	cggcacggca	5820
acggcctctc	ctgaccagcc	ctccgacgac	ggcgacgcgg	gatccgacgt	tgagtcgtac	5880
tcctccatgc	cccccttga	gggggagccg	gggggtcccc	atctcagcga	cgggtccttg	5940
tcactacgtta	gcgtagaggc	tagtgaggag	gtcgtctgct	gctcgatgtc	ctacacatgc	6000
acaggcgccc	tgatcagccc	atgcgctgcy	gaggaaacca	agctgcccat	caatgcactg	6060
agcaactctt	tgctccgtca	ccacaacttg	gtctatgcta	caacatctcg	cagcgcaagc	6120
ctgcggcaga	agaaggtcac	ctttgacaga	ctgcaggtcc	tggacgacca	ctaccgggac	6180
gtgtcaagg	agatgaaggc	gaaggcgtcc	acaggttaagg	ctaaaacttct	atccgtggag	6240
gaagcctgta	agctgacggc	cccacattcg	ccgagatcta	aatttggcta	tggggcaaaag	6300
gacgtccgga	acctatccag	caaggccgtt	aaccacatcc	gctccgtgtg	gaaggacttg	6360
ctggaagaca	ctgagacacc	aattgacact	accatcatgg	ccaagaacga	ggttttctgc	6420
gttcagcctg	agaagggggg	tcgtaagcca	gctcgtctca	tcgtgtttcc	cgacctgggc	6480
gtgcgcgtgt	gcgagaagat	ggccctgtac	gacgtggtta	gcaagctccc	cctggccgtg	6540
atgggaagct	cctacggatt	ccaatactca	ccaggaagc	gggttgaatt	cctcgtgcaa	6600
gcgtggaagt	ccaagaagac	cccgatgggg	ttctcgtatg	ataccgcgtg	ttttgactcc	6660
acagtcactg	agagcgacat	ccgtacggag	gaggcaattt	accaatgttg	tgacctggac	6720
ccccaaagccc	gcgtggccat	caagtccctc	actgagaggc	tttatgtttg	gggcccctct	6780
accaattcaa	ggggggaaaa	ctgcggctac	cgcaggtgcc	gcgcgagcgg	cgactactga	6840
actagctgtg	gtaaacacct	cacttgctac	atcaaggccc	gggcagcctg	tcgagccgca	6900
gggctccagg	actgcaccat	gctcgtgtgt	ggcgacgact	tagtcgttat	ctgtgaaagt	6960
gcgggggtcc	aggaggacgc	ggcgagcctg	agagccttca	cggaggctat	gaccaggtag	7020
tccgcccccc	ccggggaccc	cccacaacca	gaatacagct	tggagcttat	aacatcatgc	7080
tcctccaacg	tgtcagtcgc	ccacgacggc	gctggaaaga	gggtctacta	ccttaccctg	7140
gaccctacaa	ccccctcgc	gagagccgcg	tgggagacag	caagacacac	tccagtcaat	7200
tcctggctag	gcaacataat	catgtttgcc	cccacactgt	gggcgaggat	gatactgatg	7260
acccatttct	ttagcgtctc	catagccagg	gatcagcttg	aacaggctct	taactgtgag	7320
atctacggag	cctgtactc	catagaacca	ctggatctac	ctccaatcat	tcaaagactc	7380
catggcctca	gcgcattttc	actccacagt	tactctccag	gtgaaatcaa	taggggtggc	7440
gcatgcctca	gaaaacttgg	ggtcccgccc	ttgcgagctt	ggagacaccg	ggcccggagc	7500
gtccgcgcta	ggcttctgtc	cagaggaggc	agggctgcc	tatgtggcaa	gtacctcttc	7560
aaactgggag	taagaacaaa	gctcaaaact	actccaatag	cggccgctgg	ccggctggag	7620
ttgtccgggt	ggttcacggc	tggctacagc	gggggagaca	tttatcacag	cgtgtctcat	7680
gcccggcccc	gctggttctg	gttttgctta	ctcctgctcg	ctgcaggggt	aggcatctac	7740
ctcctcccca	accgatgaag	gttggggtaa	acactccggc	ctcttaagcc	atttcctgtt	7800
tttttttttt	tttttttttt	ttttttcttt	ttttttttct	ttcctttcct	tctttttttt	7860
ctttcttttt	cccttcttta	atggtggctc	catcttagcc	ctagtcacgg	ctagctgtga	7920
aaggtccgtg	agccgcatga	ctgcagagag	tgctgatact	ggcctctctg	cagatcaagt	7980

SEQLIST

<210> 5
 <211> 7980
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> The polynucleotide sequence encodes sequences from
 HCV H77 (BB7-F3(C)) Replicons

<400> 5
 gccagcccc gattgggggc gacactccac catagatcac tccccctgtga ggaactactg 60
 tcttcacgca gaaagcgtct agccatggcg ttagtatgag tgctcgtgcag cctccaggac 120
 cccccctccc gggagagcca tagtggtctg cggaaccggt gagtacaccg gaattggccag 180
 gacgaccggg tcctttcttg gatcaaccgg ctcaatgcct ggagatttgg gcgtgcccc 240
 gcgagactgc tagccgagta gtgttggtc gcgaaaggcc ttgttggtact gcctgatagg 300
 gtgcttgca gtgccccggg aggtctcgtg gaccgtgcac catgagcacg aatcctaaac 360
 ctcaaagaaa aaccaaaggg cgcgccatga ttgaacaaga tggattgcac gcaggttctc 420
 cggccgcttg ggtggagagg ctattcggct atgactgggc acaacagaca atcggctgct 480
 ctgatgccgc cgtgttccgg ctgtcagcgc agggcgccc gggtcttttt gtcaagaccg 540
 acctgtccgg tgccctgaat gaactgcagg acgaggcagc gcggctatcg tggctggcca 600
 cgacgggcgt tccttgcgca gctgtgctcg acgtgtcac tgaagcggga agggactggc 660
 tgcatttggg cgaagtgcg gggcaggatc tcctgtcatc tcaccttgct cctgccgaga 720
 aagtatccat catggctgat gcaatgcggc ggctgcatac gcttgatccg gctacctgcc 780
 cattcgacca ccaagcgaac catcgcacgc agcgagcacg tactcggatg gaagccggtc 840
 ttgtcgaatc ggatgatctg gacgaagagc atcaggggct cgcgccagcc gaactgttcg 900
 ccaggctcaa ggcgcgcacg cccgacggcg aggatctcgt cgtgacctat ggcatgccct 960
 gcttgccgaa tatcatgggt gaaaatggcc gcttttcttg attcatcgac tgtggccggc 1020
 tgggtgtggc ggaccgctat caggacatag cgttggttac ccgtgatatt gctgaagagc 1080
 ttggcggcga atgggctgac cgcttcctcg tgctttacgg tatcgccgct cccgattcgc 1140
 agcgcactgc ctcttatcgc ctcttgacg agttcttctg agtttaaaca gaccacaacg 1200
 gtttccctct agcgggatca attccgcccc tctccctccc ccccccctaa cgttactggc 1260
 cgaagccgct tggaaataagg ccggtgtgcg tttgtctata tgttattttc caccatattg 1320
 ccgtcttttg gcaatgtgag ggcccggaaa cctggccctg tcttcttgac gagcattcct 1380
 aggggtcttt cccctctcgc caaagggaatg caaggtctgt tgaatgtcgt gaaggaagca 1440
 gttcctcttg aagcttcttg aagacaaaca acgtctgtag cgacctttg caggcagcgg 1500
 aacccccac ctggcgacag gtgacctcgc ggccaaaagc cacgtgtata agatacacct 1560
 gcaaaggcgg cacaaccca gtgccacgtt gtgagttgga tagttgtgga aagagtcaaa 1620
 tggctctcct caagcgtatt caacaagggg ctgaaggatg cccagaaggt accccattgt 1680
 atgggatctg atctggggcc tcggtgcaca tgctttacat gtgtttagtc gaggttaaaa 1740
 aacgtctagg cccccgaac cacggggacg tggttttcct ttgaaaaaca cgataatacc 1800
 atggcgctta ttacggccta ctcccaacag agcgagggcc tacttggtcg catcatcact 1860
 agcctcacag gccgggacag gaaccagggtc gagggggagg tccaagtggc ctccaccgca 1920
 acacaatctt tcctggcgac ctgctgcaat ggctgtgtgt ggactgtcta tcatgggtgcc 1980
 ggtcacaaga cctttgcggg cccaaaggcc ccaatcaccc aaatgtacac caatgtggac 2040
 caggacctcg tcggttcgca agcgcctccc gggcgcggtt ccttgacacc atgcacctgc 2100
 ggcagctcgg acctttactt ggtcacgagg catgccgatg tcattccggt gcgccggcgg 2160
 ggcgacagca gggggagcct actctcccc aggccggtct cctacttgaa gggctcttcg 2220
 ggcggtccac tgcctgccc ctcggggac gctgtgggca tctttcgggc tgccgtgtgc 2280
 acccgagggg ttgcgaaggc ggtggacttt gtaccgctcg agtctatgga aaccactatg 2340
 cggccccggg tcttcacgga caactcgtcc cctccggccg taccgcagac attccagggt 2400
 gcccatctac acgccccctac tggtagcggc aagagcacta aggtgccggc tgcgtatgca 2460
 gcccaagggt ataagggtgt tgcctgaac ccgtccgtcg ccgccaccct aggtttcggg 2520
 gcgtatatgt ctaaggcaca tggatatcga cctaactca gaaccggggg aaggaccatc 2580
 accacgggtg ccccatcac gtactccacc tatggcaagt ttcttgccga cgggtggttg 2640
 tctggggcgg cctatgacat cataatatgt gatgagtgcc actcaactga ctcgaccact 2700
 atcctgggca tcggcacagt cctggacca ggcgagacgg ctggagcgcg actcgtcgtg 2760
 ctgcgccagg ctacgcctcc gggatcgggt accgtgccac atccaaacat cgaggaggtg 2820
 gctctgtcca gcaactggga aatccccctt tatggcaaag ccatacccat cgagaccatc 2880
 aaggggggga ggcacctcat tttctgcatc ttcgaagaaga aatgtgatga gctcggcggc 2940
 aagctgtccg gcctcggact caatgctgta gcatattacc ggggccttga tgtatccgtc 3000
 ataccaacta gcggagacgt cattgtcgta gcaacggacg ctctaataac gggctttacc 3060
 ggcgatttcg actcagtgat cgactgcaat acatgtgtca cccagacagt cgacttcagc 3120
 ctggaccgga ccttcacgat tgagacgacg accgtgccac aagacgcggt gtcacgctcg 3180
 cagcggcgag gcaggactgg taggggcagg atgggcattt acaggtttgt gactccagga 3240
 gaacggccct cgggcatgtt cgattcctcg gttctgtgcg agtgctatga cgcgggctgt 3300
 gcttggtacg agctcacgcc cgccgagacc tcagttaggt tgcgggctta cctaaacaca 3360
 ccagggttgc ccgtctgcca ggaccatctg gagtctggg agagcgtctt tacaggcctc 3420

SEQLIST

accacatag	acgccccattt	cttgtcccag	actaagcagg	caggagacaa	cttcccctac	3480
ctggttagcat	accaggctac	ggtgtgcgcc	agggctcagg	ctccacctcc	atcgtgggac	3540
caaatgtgga	agtgtctcat	acggctaaag	cctacgtgc	acgggccaac	gcccctgctg	3600
tataggctgg	gagccgttca	aaacgaggtt	actaccacac	accccataac	caaatacatc	3660
atggcgtgca	tgtcgggtga	cctggaggtc	gtcacgagca	cctgggtgct	ggtaggcgga	3720
gtcctagcag	ctctggccgc	gtattgcctg	acaacaggca	gcgtgggtcat	tgtgggcagg	3780
atcatcttgt	ccggaagcc	ggccatcatt	cccgcaggg	aagtccttta	ccgggagttc	3840
gatgagatgg	aagagtgcgc	ctcacacctc	ccttacatcg	aacagggaat	gcagctcgcc	3900
gaacaattca	aacagaaggc	aatcgggttg	ctgcaaacag	ccaccaagca	agcggaggct	3960
gctgctccc	tgggtggaatc	caagtggcgg	accctcgaag	ccttctgggc	gaagcatatg	4020
tgggaatttca	tcagcgggat	acaatattta	gcaggcttgt	ccactctgcc	tggcaacccc	4080
gcgatagcat	cactgatggc	attcacagcc	tctatcacca	gcccgcctac	cacccaacat	4140
accctcctgt	ttaacatctc	ggggggatgg	gtggccgccc	aacttgctcc	tcccagcgct	4200
gcttctgctt	tcgtaggcgc	cggcatcgct	ggagcggctg	ttggcagcat	agggccttggg	4260
aaggtgcttg	tggatatattt	ggcaggttat	ggagcagggg	tggcaggcgc	gctcgtggcc	4320
tttaaggtca	tgagcggcga	gatgccctcc	accgaggacc	tggttaacct	actccctgct	4380
atcctctccc	ctggcgccct	agtcgtcggg	gtcgtgtgcg	cagcgatact	gcgtcggcac	4440
gtgggcccag	gggagggggc	tgtgcagtgg	atgaaccggc	tgatagcgtt	cgcttcgcgg	4500
ggtaaccacg	tctccccac	gcactatgtg	cctgagagcg	acgctgcagc	acgtgtcact	4560
cagatcctct	ctagtcttac	catcactcag	ctgctgaaga	ggcttcacca	gtggatcaac	4620
gaggactgct	ccacgccatg	ctccggctcg	tggctaagag	atgtttggga	ttggatatgc	4680
acgggtgttg	ctgatttcaa	gacctggctc	cagtccaagc	tcctgcccgc	attgccggga	4740
gtccccctct	tctcatgtca	acgtgggtac	aagggaagtct	ggcggggcga	cggcatcatg	4800
caaaccacct	gccccatgtg	agcacagatc	accggacatg	tgaaaaacgg	ttccatgagg	4860
atcgtggggc	ctaggacctg	tagtaacacg	tggcatggaa	cattccccat	taacgcgtac	4920
accacggggc	cctgcacgcc	ctccccggcg	ccaaattatt	ctagggcgct	gtggcggggtg	4980
gctgctgagg	agtacgtgga	ggttacgcgg	gtgggggatt	tccactacgt	gacgggcagt	5040
accactgaca	acgtaaaagt	cccgtgtcag	gttccggccc	ccgaattctt	cacagaagtg	5100
gatgggggtgc	ggttgccacag	gtacgctcca	gcgtgcaaac	ccctcctacg	ggaggaggctc	5160
acattcctgg	tcggggtcaa	tcaatacctg	gttgggtcac	agctcccatg	cgagcccga	5220
ccggacgtag	cagtgtctac	ttccatgctc	accgaccctt	cccacattac	ggcggagacg	5280
gctaagcgta	ggctggccag	gggatctccc	ccctccttgg	ccagctcatc	agctatccag	5340
ctgtctgcgc	cttctctgaa	ggcaacatgc	actaccgctc	atgactcccc	ggacgctgac	5400
ctcatcgagg	ccaacctcct	gtggcggcag	gagatgggcg	ggaacatcac	ccgcgtggag	5460
tcagaaaata	aggtagtaat	tttggactct	ttcgagccgc	tccaagcggg	ggaggatgag	5520
agggaagtat	ccgttccggc	ggagatcctg	cggaggtcca	ggaaattccc	tcgagcgatg	5580
cccatatggg	cacgcccggg	ttacaaccct	ccactgttag	agtcctggaa	ggaccgggac	5640
tacgtccctc	cagtgggtaca	cgggtgtcca	ttgccgcctg	ccaaggcccc	tccgatacca	5700
cctccacgga	ggaagaggac	ggttgtcctg	tcagaatcta	ccgtgtcttc	tgccttggcg	5760
gagctcgcca	caaagacctt	cggcagctcc	gaatcgtcgg	ccgtcgacag	cggcacggca	5820
acggcctctc	ctgaccagcc	ctccgacgac	ggcgacgcgg	gatccgacgt	tgagtcgtac	5880
tcctccatgc	cccccttga	gggggagccg	ggggatcccg	atctcagcga	cgggtcttgg	5940
tctaccgtaa	gcgaggaggc	tagtgaggac	gtcgtctgct	gctcgatgtc	ctacacatgg	6000
acaggcgccc	tgatcacgcc	atgcgctgcg	gaggaaacca	agctgcccac	caatgcaactg	6060
agcaactctt	tgtctcgtca	ccacaacttg	gtctatgcta	caacatctcg	cagcgcaagc	6120
ctgcggcaga	agaaggtcac	ctttgacaga	ctgcaggtcc	tggacgacca	ctaccgggac	6180
gtgtctcaagg	agatgaaggc	gaaggcgctc	acagttaagg	ctaaacttct	atccgtggag	6240
gaagcctgta	agctgacgcc	cccacattcg	gccagatcta	aattttggcta	tggggcaaaag	6300
gacgtccgga	acctatccag	caaggccgtt	aaccacatcc	gctccgtgtg	gaaggacttg	6360
ctggaagaca	ctgagacacc	aattgacact	accatctatg	ccaagaacga	ggttttctgc	6420
gttcagcctg	agaagggggg	tcgtaagcca	gctcgtctca	tcgtgttccc	cgacctgggc	6480
gtgcgcgtgt	gcgagaagat	ggccctgtac	gacgtggtta	gcaagctccc	cctggccgtg	6540
atgggaagct	cctacggatt	ccaatactca	ccaggacagc	gggttggaatt	cctcgtgcaa	6600
gcgtggaagt	ccaagaagac	cccgatgggg	ttctcgtatg	ataccgcgtg	ttttgactcc	6660
acagctcactg	agagcgacat	ccgtacggag	gaggcaattt	accaatggtg	tgacctggac	6720
ccccaagccc	gcgtggccat	caagtccctc	actgagaggc	tttatgttgg	gggcccctctt	6780
accaattcaa	ggggggaaaa	ctgcggctac	cgcaggtgcc	gcgcgagcgg	cgtactgaca	6840
actagctgtg	gtaacaccct	cacttgctac	atcaaggccc	gggcagcctg	tcgagccgca	6900
gggtccagg	actgcaccat	gctcgtgtgt	ggcgacgact	tagtcgttat	ctgtgaaagt	6960
gcgggggtcc	aggagagcgc	ggcgagcctg	agagccttca	cggaggctat	gaccaggtag	7020
tccgcccccc	ccggggaccc	cccacaacca	gaatacgact	tggagcttat	aacatcatgc	7080
tcctccaacg	tgtcagtcgc	ccacgacggc	gctggaaaga	gggtctacta	ccttaccctgt	7140
gacctacaa	cccccttcgc	gagagccgcg	tgggagacag	caagacacac	tccagtcaat	7200
tcctggctag	gcaacataat	catgtttgct	cccacactgt	gggcgaggat	gatactgatg	7260
acccatttct	ttagcgtcct	catagccagg	gatcagcttg	aacaggctct	taactgtgag	7320
atctacggag	cctgtacttc	catagaacca	ctggatctac	ctccaatcat	tcaaagactc	7380
catggcctca	gcgcattttc	actccacagt	tactctccag	gtgaaatcaa	taggggtggcc	7440
gcatgcctca	gaaaacttgg	ggtcccgcgc	ttgcgagctt	ggagacaccg	ggcccggagc	7500

SEQLIST

gtccgcgcta	ggctttctgtc	cagaggaggc	agggctgcc	tatgtggcaa	gtacctcttc	7560
aactgggcag	taagaacaaa	gctcaaaactc	actccaatag	cggccgctgg	ccggctggac	7620
ttgtccggtt	ggttcacagg	tggctacagc	gggggagaca	tttatcacag	cgtgtctcat	7680
gcccggcccc	gctggttctg	gttttgccca	ctcctgctcg	ctgcagggtt	aggcatctac	7740
ctccctccca	accgatgaag	gttggggtaa	acactccggc	ctcttaagcc	atttcctgtt	7800
tttttttttt	tttttttttt	ttttttcttt	ttttttttct	ttcctttcct	tctttttttc	7860
ctttcttttt	cccttcttta	atggtggctc	catcttagcc	ctagtcacgg	ctagctgtga	7920
aaggtccgtg	agccgcttga	ctgcagagag	tgctgatact	ggcctctctg	cagatcaagt	7980

<210> 6
 <211> 7989
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Thepolynucleotide sequence encodes sequences from
 HCV H77(BB7/H77NS5B)Replicons

<400> 6						
gccagcccc	gattgggggc	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgctcgtcag	cctccaggac	120
ccccctccc	gggagagcca	tagtgggtctg	cggaaccggt	gagtacaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gatcaacccg	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtgttggttc	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgcca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcacg	aatcctaaac	360
ctcaaagaaa	aaccaaaggg	cgcgccatga	ttgaacaaga	tggattgcac	gcaggttctc	420
cggccgcttg	ggtggagagg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgccgc	cgtgttcccg	ctgtcagcgc	agggcgcccc	ggttcttttt	gtcaagaccg	540
acctgtcccg	tgccctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgtcac	tgaagcggga	agggactggc	660
tgctattggg	cgaagtgcgc	gggcaggatc	tcctgtcatc	tcaccttgct	cctgccgaga	720
aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	gcttgatccg	gctacctgcc	780
cattcgacca	ccaagcgaaa	catcgcatcg	agcagcacg	tactcggatg	gaagccgggc	840
ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttctg	900
ccaggctcaa	ggcgcgcgatg	cccgcaggcg	aggatctcgt	cgtgacccat	ggcgtatgcct	960
gcttgccgaa	tatcatggtg	gaaaatggcc	gcttttctgg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cgttggtctac	ccgtgatatt	gctgaagagc	1080
ttggcggcga	atgggtcgac	cgcttcctcg	tgctttacgg	tatcgccgct	cccgattcgc	1140
agcgatcgc	cttctatcgc	cttcttgacg	agttcttctg	agtttaaaaca	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tgggaataagg	ccggtgtgcg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttg	gcaatgtgag	ggcccggaaa	cctggccctg	tcttcttgac	gagcattcct	1380
aggggtcttt	ccctctcgcg	caaaggaatg	caaggctctg	tgaatgtcgt	gaagggaagca	1440
gttctctctg	aagcttcttg	aagacaaaca	acgtctgtag	cgaccctttg	caggcagcgg	1500
aacccccac	ctggcgacag	gtgcctctgc	ggccaaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaacccca	gtgccacggt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggctctcct	caagcgtatt	caacaagggg	ctgaaggatg	cccagaagggt	acccatttgt	1680
atgggatctg	atctggggcc	tcgggtgcaca	tgctttacat	gtgttttagtc	gaggttaaaa	1740
aacgtctagg	ccccccgaac	cacggggacg	tggttttctc	ttgaaaaaca	cgataatacc	1800
atggcgccta	ttacggccta	ctcccaacag	acgcgaggcc	tacttggtcg	catcatcact	1860
agcctcacag	gcccgggacag	gaaccaggtc	gagggggagg	tccaagtggg	ctccaccgca	1920
acacaatctt	tcctggcgac	ctgcgtcaat	ggcgtgtggt	ggactgtcta	tcatggtgcc	1980
ggctcaaaga	cccttgccgg	cccaaagggc	ccaatcaccc	aaatgtacac	caatgtggac	2040
caggacctcg	tcggctggca	agcgcctccc	ggggcgcggt	ccttgacacc	atgcacctgc	2100
ggcagctcgg	acctttactt	ggtcacgagg	catgcccgatg	tcattccggt	gcgccggcgg	2160
ggcgacagca	gggggagcct	actctcccc	aggcccgctc	cctacttgaa	gggctcttcg	2220
ggcgggtccac	tgctctgccc	ctcggggcac	gctgtgggca	tctttcgggc	tgccgtgtgc	2280
acccgagggg	ttgcgaaggc	ggtggacttt	gtacccgtcg	agtctatgga	aaccactatg	2340
cgggtccccg	tcttcacgga	caactcgtcc	cctccggccg	taccgcagac	attccagggtg	2400
gcccactctac	acgcccctac	tggtagcggc	aagagcacta	aggtgcccgc	tgcgatatga	2460
gcccgaagggt	ataagggtct	tgctctgaac	cgcctcgtcg	ccgccaccct	aggtttcggg	2520
gcgtatatgt	ctaaggcaca	tggtatcgac	cctaacatca	gaaccggggg	aaggaccatc	2580
accacgggtg	cccccatcac	gtactccacc	tatggcaagt	ttcttgccga	cgggtggtgc	2640
tctgggggcg	cctatgacat	cataatatgt	gatgagtgcc	actcaactga	ctcgaccact	2700
atcctgggca	tcggcacagt	cctggaccaa	gcggagcagg	ctggagcgcg	actcgtcgtg	2760

SEQLIST

ctcgccaccg	ctacgcctcc	gggatcggtc	accgtgccac	atccaaacat	cgaggaggtg	2820
gctctgtcca	gcactggaga	aatccccctt	tatggcaaag	ccatccccat	cgagaccatc	2880
aaggggggga	ggcacctcat	tttctgccat	tccaagaaga	aatgtgatga	gctcgccgcg	2940
aagctgtccg	gcctcggact	caatgtctga	gcataattacc	ggggccttga	tgatccgtc	3000
ataccaacta	gcggagacgt	cattgtcgta	gcaacggacg	ctctaatagac	gggctttacc	3060
ggcgatttcg	actcagtgat	cgactgcaat	acatgtgtca	cccagacagt	cgacttcagc	3120
ctggacccca	ccttcaccat	tgagacgacg	accgtgccac	aagacgcggt	gtcacgctcg	3180
cagcggcgag	gcaggactgg	taggggcagg	atgggcatth	acaggtttgt	gactccagga	3240
gaacggccct	cgggcatgtt	cgattcctcg	gttctgtgcg	agtgtatga	cgcggtgtgt	3300
gcttggtacg	agctcacgcc	cgccgagacc	tcagttaggt	tgcggttga	cctaatacaca	3360
ccagggttgc	ccgtctgcca	ggaccatctg	gagttctggg	agagcgtctt	tacaggcctc	3420
accacatag	acgcccattt	cttgtcccag	actaagcagg	caggagacaa	cttccccctac	3480
ctggtagcat	accaggctac	ggtgtgcgct	agggctcagg	ctccacctcc	atcgtgggac	3540
caaattgtga	agtgctcat	acggctaaag	cctacgtgc	acgggccaac	cgccctgtcg	3600
tataggctgg	gagccgttca	aaacgaggtt	actaccacac	accccataac	caaatacatc	3660
atggcatgca	tgctggctga	cctggaggtc	gtcacgagca	cctgggtgct	ggtaggcgga	3720
gtcctagcag	ctctggccgc	gtattgcctg	acaacaggca	gcgtgggtcat	tgtaggcagg	3780
atcatcttgt	ccggaagacc	ggccatcatt	cccacaggg	aagtccttta	ccgggagttc	3840
gatgagatgg	aagagtgcgc	ctcacacctc	ccttacatcg	aacagggaat	gcagctcgcc	3900
gaacaattca	aacagaaggc	aatcgggttg	ctgcaaacag	ccaccaagca	agcggaggct	3960
gctgtctccc	tggttgaatc	caagtggcgg	accctcgaag	ccttctgggc	gaagcatatg	4020
tggaatttca	tcagcgggat	acaatattta	cgaggcttgt	ccactctgcc	tggaaccccc	4080
gcgatagcat	cactgatggc	attcacagcc	tcattaccac	gcccgtctac	cacccaacat	4140
accctcctgt	ttaacatcct	gggggggatgg	gtggccgccc	aacttgctcc	ttccagcgct	4200
gcttctgctt	tcgtaggcgc	cggcatcgct	ggagcggctg	ttggcagcat	aggccttggg	4260
aaggtgcttg	tggtatattt	ggcaggttat	ggagcagggg	tggcaggcgc	gctcgtggcc	4320
tttaaggtca	tgagcggcga	gatgcccctc	accgaggacc	tggttaacct	actcctgtct	4380
atcctctccc	ctggcgccct	agtcgtcggg	ctcgtgtgcg	cagcgatact	gcgtcggcac	4440
gtggggccag	gggagggggc	tgtgcagtgg	atgaaccggc	tgatagcgtt	cgcttcgcgg	4500
ggtaaccacg	tctccccccac	gcactatgtg	cctgagagcg	acgctgcagc	acgtgtcact	4560
cagatcctct	ctagtcttac	catcactcag	ctgctgaaga	ggcttcacca	gtggatcaac	4620
gaggactgct	ccacgccatg	ctccggctcg	tggctaaagag	atgtttggga	ttggatatgc	4680
acggtgttga	ctgatttcaa	gacctggctc	cagtccaagc	tcctgccgcg	attgccggga	4740
gtccccctct	tctcatgtca	acgtgggtac	aagggagtct	ggcggggcga	cggcatcatg	4800
caaaccacct	gccccatgtg	agcacagatc	accggacatg	tgaaaaacgg	ttccatgagg	4860
atcgtggggc	ctaggacctg	tagtaaacac	tggcattgaa	cattccccat	taacgcgtac	4920
accacggggc	cctgcacgcg	ctccccgcg	ccaaattatt	ctagggcgct	gtggcggggtg	4980
gctgtgagg	agtacgtgga	ggttacgcgg	gtgggggatt	tccactacgt	gacgggcatg	5040
accactgaca	acgtaaagtg	cccgtgtcag	gttccggccc	ccgaattctt	cacagaagtg	5100
gatgggggtg	ggttgccacg	gtacgctcca	gcgtgcaaac	ccctcctacg	ggaggaggct	5160
acattccttg	tcgggtctaa	tcaatacctg	gttgggtcac	agctcccatg	cgagcccgaa	5220
ccggacgtag	cagtgtcac	ttccatgctc	accgacctct	cccacattac	ggcggagacg	5280
gctaagcgta	ggctggccag	gggatctccc	ccctccttgg	ccagctcatc	agctatccag	5340
ctgtctgcgc	cttccttgaa	ggcaacatgc	actaccgcgc	atgactcccc	ggacgctgac	5400
ctcatcgagg	ccaacctctt	gtggcggcag	gagatgggcg	ggaacatcac	ccgcgtggag	5460
tcagaaaata	cgttagtaat	tttgactctt	ttcgagccgc	tccaagcgga	ggaggatgag	5520
aggggaagtat	ccgttcgggc	ggagatcctg	cggaggtcca	ggaaattccc	tcgagcgatg	5580
cccatatggg	cacgcccggg	ttacaacctt	ccactgttag	agtcctggaa	ggacccggac	5640
tacgtccctc	cagtggta	cgggtgtcca	ttgccgcctg	ccaaggcccc	ttcgatacca	5700
cctccacgga	ggaagaggac	ggttgtctct	tcagaattcta	ccgtgtcttc	tgccctggcg	5760
gagctcgcca	caaagacctt	cggcagctcc	gaatcgtcgg	ccgtcgacag	cggcacggca	5820
acggcctctc	ctgaccagcc	ctccgacgac	ggcgacgcgg	gatccgacgt	tgagtcgtac	5880
tcctccatgc	cccccttga	ggggggagccg	ggggatcccg	atctcagcga	cgggtcttgg	5940
tctaccgtaa	gcgaggaggc	tagtgaggac	gtcgtctgct	gctcgaatgc	ctacacatgg	6000
acaggcgccc	tgatcacccc	gtgcgctgcg	gaagaacaaa	aactgcccac	caacgcactg	6060
agcaactcgt	tgctacgcca	tcacaatctg	gtgtattcca	ccacttcacg	cagtgtctgc	6120
caaaggcaga	agaaagtac	atttgacaga	ctgcaagttc	tggacagcca	ttaccaggac	6180
gtgctcaagg	aggtcaaagc	agcggcgctca	aaagtgaagg	ctaacttgct	atccgttagg	6240
gaagcttgca	gcctgacgcc	cccacattca	gccaatcca	agttttggcta	tggggcaaaa	6300
gacgtccgtt	gcatcgccag	aaaggccgta	gcccacatca	actccgtgtg	gaaagacctt	6360
ctggaagaca	gtgtaacacc	aatagacact	accatcatgg	ccaagaacga	ggttttctgc	6420
gttcagcctg	agaagggggg	tcgtaagcca	gctcgtctca	tcgtgttccc	cgacctgggc	6480
gtgcgcgtgt	cgcgagaagt	ggccctgtac	gacgtggtta	gcaagctccc	cctggccgtg	6540
atgggaagct	ccatagcgtt	ccaatactca	ccaggacagc	gggttggaatt	cctcgtgcaa	6600
gcgtggaagt	ccaagaagac	cccgatgggg	ttctcgtatg	ataccgcgtg	ttttgactcc	6660
acagtcactg	agagcgacat	ccgtacggag	gaggcaattt	accaatgttg	tgacctggac	6720
ccccaagccc	gcgtggccat	caagtccctc	actgagaggc	tttatgttgg	gggcccctct	6780
accaattcaa	ggggggaaaa	ctgcggctac	cgcaggtgcc	gcgcgagcgg	cgtactgaca	6840

SEQLIST

actagctgtg	gtaacaccct	cacttgctac	atcaaggccc	gggcagcctg	tcgagccgca	6900
gggctccagg	actgcaccat	gctcgtgtgt	ggcgacgact	tagtcgttat	ctgtgaaagt	6960
gcggggggtcc	aggaggacgc	ggcgagcctg	agagccttca	cggagggtat	gaccagggtac	7020
tcctccccc	ccggggacc	cccacaacca	gaatacgact	tggagcttat	aacatcatgc	7080
tcctccaacg	tgtcagtcgc	ccacgacggc	gctggaaaga	gggtctacta	ccttaccctg	7140
gaccctacaa	ccccctcgc	gagagccgcg	tgggagacag	caagacacac	tccagtcaat	7200
tcctggctag	gcaacataat	catgtttgcc	cccacactgt	gggcgaggat	gatactgatg	7260
acccatttct	ttagcgctct	catagccagg	gatcagcttg	aacaggctct	taactgtgag	7320
atctacggag	cctgctactc	catagaacca	ctggatctac	ctccaatcat	tcaaagactc	7380
catggcctca	gcgcattttc	actccacagt	tactctccag	gtgaaatcaa	taggggtggcc	7440
gcatgcctca	gaaaacttgg	ggtcccggcc	ttgcgagctt	ggagacaccg	ggcccggagc	7500
gtccgcgcta	ggcttctgtc	cagaggaggc	agggctgcca	tatgtggcaa	gtacctcttc	7560
aactgggcag	taagaacaaa	gctcaaaact	actccaatag	cggccgctgg	ccggctggag	7620
ttgtccggtt	ggttcacggc	tggctacagc	gggggagaca	tttatcacag	cgtgtctcat	7680
gcccggcccc	gctggttctg	gttttgccct	ctcctgctcg	ctgcaggggt	aggcatctac	7740
ctcctcccca	accgatgaag	gtttacgtaa	acactccagg	ccaataggcc	atcctgtttt	7800
tttccctttt	ttttttctt	ttttttttt	ttttttttt	ttttttttt	ttctcctttt	7860
ttttcctct	ttttttcct	ttttttcct	tggtggctcc	atcttagccc	tagtcacggc	7920
tagctgtgaa	aggtccgtga	gccgcttgac	tgagagagat	gctgatactg	gcctctctgc	7980
agatcaagt						7989

<210> 7

<211> 7983

<212> DNA

<213> Artificial Sequence

<220>

<223> Thepolynucleotide sequence encodes sequences from
HCV 1a Replicons

<400> 7

gccagcccc	gattgggggc	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgtcgtgcag	cctccaggag	120
ccccctccc	gggagagcca	tagtgggtctg	cggaaacggg	gagtaacacc	gaattggccc	180
gacgaccggg	tcctttcttg	gatcaaccgc	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtgttgggtc	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgca	gtgccccggg	aggtctcgtg	gaccgtgcac	catgagcacg	aatcctaaac	360
ctcaaagaaa	aaccaaaggg	cgcgcatga	ttgaacaaga	tggattgcac	gcaggttctc	420
cggccgcttg	ggtggagagg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgcgcg	cgtgttcggc	ctgtcagcgc	agggcgcccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgccctgaat	gaactgcagg	acgaggcagc	gcggtatctg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgtctg	acgttgtcac	tgaagcggga	agggactggc	660
tgtatttggg	cgaagtgcgc	gggcaggatc	tcctgtcatc	tcaccttgct	cctgcccaga	720
aagtatccat	catggctgat	gcaatgcggc	gcttgatcac	gcttgatccg	gctacctgcc	780
cattcgacca	ccaagcgaaa	catcgcatcg	agcgagcacg	tactcggatg	gaagccggtc	840
ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttctg	900
ccaggctcaa	ggcgcgcatg	cccgcggcg	aggatctcgt	cgtgaccat	ggcgatgcct	960
gcttgccgaa	tatcatggtg	gaaaatggcc	gcttttctgg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cgttggctac	ccgtgatatt	gctgaagagc	1080
ttggcggcga	atgggctgac	cgcttcctcg	tgttttacgg	tatcgccgct	cccgattcgc	1140
agcgatcgc	cttctatcgc	cttcttgacg	agttcttctg	agtttaaaca	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tggaaataagg	ccgggtgtgcg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttg	gcaatgtgag	ggcccggaaa	cctggccctg	tcttcttgac	gagcattcct	1380
aggggtcttt	cccctctcgc	caaaggaatg	caaggtctgt	tgaatgtcgt	gaaggaagca	1440
gttctcttgg	aagcttcttg	aagacaaaca	acgtctgtag	cgaccctttg	caggcagcgg	1500
aacccccac	ctggcgacag	gtgacctctg	ggccaaaagc	cacgtgtata	agatacact	1560
gcaaaggcgg	cacaacccca	gtgccacgtt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggctctcct	caagcgtatt	caacaagggg	ctgaaggatg	cccagaaggt	acccatttgt	1680
atgggatctg	atctggggcc	tcgggtgcaca	tgttttacat	gtgttttagt	gaggttaaaa	1740
aacgtctagg	ccccccgaac	cacggggacg	tggttttcct	ttgaaaaaca	cgataatacc	1800
atggcgccct	ttacggccta	ctcccaacag	acgcgaggcc	tacttggctg	catcatcact	1860
agcctcacag	gccgggacag	gaaccaggct	gagggggagg	tccaagtggg	ctccaccgca	1920
acacaatctt	tcctggcgac	ctgcgtcaat	ggcgtgtgtt	ggactgtcta	tcatgggtgc	1980
ggctcaaaga	cccttgccgg	cccaaagggc	ccaatcacc	aatgtacac	caatgtggac	2040
caagaccttg	tgggctggcc	cgctcctcaa	ggttcccgt	cattgacacc	ctgtacctgc	2100

SEQLIST

ggctcctcgg	acctttacct	ggtcacgagg	cacgccgatg	tcattcccgt	gcgccggcga	2160
ggtgatagca	ggggtagcct	gctttcgcgc	cggcccatth	cctacttgaa	aggctcctcg	2220
gggggtccgc	tgttggtgccc	cgcgggacac	gccgtggggc	tattcagggc	cgcggtgtgc	2280
acccgtggag	tggctaaagc	ggtggacttt	atccctgtgg	agaacctagg	gacaacctag	2340
agatccccgg	tgttcacgga	caactcctct	ccaccagcag	tgccccagag	cttccagggtg	2400
gcccacctgc	atgctcccac	cggcagcggt	aagagcacca	aggctcccgc	tgcgtacgca	2460
gcccagggct	acaaggtggt	ggtgctcaac	ccctctgttg	ctgcaacgct	gggctttggt	2520
gcttacatgt	ccaaggccca	tgggggtgat	cctaataatca	ggaccggggg	gagaacaatt	2580
accactggca	gccccatcac	gtactccacc	tacggcaagt	tccttgccga	cgcggggtgc	2640
tcaggagggtg	cttatgacat	aataatttgt	gacgagtgcc	actccacgga	tgccacatcc	2700
atcttgggca	tcggcactgt	ccttgacca	gcagagactg	cgggggcgag	actggttgtg	2760
ctcgccactg	ctacccctcc	gggctccgct	actgtgcccc	atcctaact	cgaggagggt	2820
gctctgtcca	ccaccggaga	gatccccctt	tacggcaagg	ctatccccct	cgagggtgat	2880
aaggggggaa	gacatctcat	cttctgccac	tcaaagaga	agtgcgacga	gctcgccgcg	2940
aagctggtcg	cattgggcat	caatgccgtg	gcctactacc	gcggtcttga	cgtgtctgtc	3000
atccccacca	gcggcgatgt	tgtcgtcgtg	tcgaccgatg	ctctcatgac	tggttttacc	3060
ggcgacttcg	actctgtgat	agactgcaac	acgtgtgtca	ctcagacagt	cgatttcagc	3120
cttgacccta	cctttaccat	tgagacaacc	acgtcccccc	aggatgctgt	ctccaggact	3180
caacgccggg	gcaggactgg	cagggggaag	ccaggcatct	atagatttgt	ggcaccgggg	3240
gagcgccctt	ccggcatggt	cgactcgtcc	gtcctctgtg	agtgtatga	cgcgggctgt	3300
gcttggatg	agctcacgcc	cgccgagact	acagttaggc	tacgagcgta	catgaacacc	3360
ccggggcttc	ccgtgtgcca	ggaccatctt	gaattttggg	agggcgtctt	tacgggcctc	3420
actcatatag	atgcccactt	tttatcccag	acaaagcaga	gtggggagaa	ctttccttac	3480
ctggtagcgt	accaagccac	cgtgtgcgct	agggtcaag	cccccccccc	atcgtgggac	3540
cagatgtggg	agtgtttgat	ccgccttaaa	cccaccctcc	atggggcaac	acccttgcta	3600
tacagactgg	gcgctgttca	gaatgaagtc	accctgacgc	acccaatcac	caaatacatc	3660
atgacatgca	tctcgccga	cctggaggtc	gtcacgagca	cctgggtgtc	cgttggcggc	3720
gtcctggctg	gtctggccgc	gtattgcctg	tcaacaggct	gcgtgggtcat	agtgggcagg	3780
atcgtcttgt	ccgggaagcc	ggcaattata	cctgacaggg	aggttctcta	ccaggagttc	3840
gatgagatgg	aagagtgttc	tcagcactta	ccgtacatcg	agcaagggat	gatgctcgct	3900
gagcagttca	agcagaaggc	cctcggcctc	ctgcagaccg	cgtcccgcga	tgacagaggt	3960
atcacccctg	ctgtccagag	caactggcag	aaactcgagg	tcttttgggc	gaagcacatg	4020
tgggaatttca	tcagtgggat	acaatacttg	gcgggcctgt	caacgctgcc	tggtaacccc	4080
gccattgctt	cattgatggc	ttttacagct	gccgtcacca	gccccactaac	cactggccaa	4140
accctcctct	tcaacatatt	gggggggtgg	gtggctgccc	agctcgccgc	ccccgggtgcc	4200
gctactcctt	ttgtgggtgc	tgccctagct	ggcgccgcca	tcggcagcgt	tggaactggg	4260
aaggtcctcg	tggacattct	tgcagggtat	ggcgcgggcg	tggggggagc	tcttgtagca	4320
ttcaagatca	tgagcgggtga	ggtccccctc	acggaggacc	tggtcaatct	gctgcccgc	4380
atcctctcgc	ctggagccct	tgtagtcggt	gtggctctgc	cagcaatact	gcgcccggcac	4440
gttggccccg	gcgagggggc	agtgaatgg	atgaaccggc	taatagcctt	cgccctcccg	4500
gggaaccatg	tttccccac	gcactacgtg	ccgagagcgc	atgcagccgc	ccgcgtcact	4560
gccatactca	gcagcctcac	tgtaacccag	ctcctgaggc	gactgcatca	gtggataagc	4620
tcggagtgtg	ccactccatg	ctccgggttc	tggtcaaggg	acatctggga	ctggatatgc	4680
gtggtgctga	gcgactttaa	gacctggctg	aaagccaagc	tcatgccaca	actgcctggg	4740
attccctttg	tgtcctgcca	gcgcgggtat	aggggggtct	ggcgaggaga	cggcattatg	4800
cacactcgct	gccactgtgg	agctgagatc	actggacatg	tcaaaaacgg	gacgatgagg	4860
atcgtcggtc	ctaggacctg	caggaacatg	tggagtggga	cgttccccat	taacgcctac	4920
accacggggc	cctgtactcc	ccttcctgcg	ccgaactata	agttcgcgct	gtggagggtg	4980
tctgcagagg	aatacgtgga	gataaggcgg	gtgggggact	tccactacgt	atcgggtatg	5040
actactgaca	atcttaaatg	cccggtccag	atccccatgc	ccgaattctt	cacagaattg	5100
gacgggggtg	gcctacacag	gtttgcgccc	ccttgcaagc	ccttgctgcg	ggaggaggta	5160
tcattcagag	taggactcca	cgagtaccgc	gtgggtctgc	aattaccttg	cgagcccgaa	5220
ccggacgtag	ccgtgttgac	gtccatgctc	actgatccct	cccatataac	agcagaggcg	5280
gccggggagaa	ggttggcgag	agggtcaccc	ccttctatgg	ccagctcctc	ggctatccag	5340
ctgtccgctc	catctctcaa	ggcaacttgc	accgccaacc	atgactcccc	tgacgcccag	5400
ctcatagagg	ctaacctcct	gtggaggcag	gagatgggcg	gcaacatcac	caggggttag	5460
tcagagaaca	aagtgggtgat	tctggactcc	ttcgatccgc	ttgtggcaga	ggaggatgag	5520
cgggagggtct	ccgtacctgc	agaaattctg	cggaaagtct	ggagattcgc	ccggggcctg	5580
cccgctctgg	cgcgccgga	ctacaacccc	ccgctagttag	agacgtggaa	aaagcctgac	5640
tacgaaccac	ctgtgggtcca	tggtgccccg	ctaccacctc	cacggtcccc	tcctgtgcct	5700
ccgcctcgga	aaaagcgtac	ggtggtcctc	accgaatcaa	ccctatctac	tgcttggcc	5760
gagcttgcca	ccaaaagttt	tggcagctcc	tcaacttccg	gcattacggg	cgacaatacg	5820
acaacatcct	cttagcccg	cccttctggt	tgcccccccg	actccgacgt	tgagtcctat	5880
tcttccatgc	ccccctgga	gggggagcct	ggggatccgg	atctcagcga	cggtcatgg	5940
tcgacgggtca	gtagtggggc	cgacacggaa	gatgtcgtgt	gctgtcaat	gtcttattcc	6000
tggacaggcg	cactcgtcac	cccgtgcgct	gcggaagaac	aaaaactgcc	catcaacgca	6060
ctgagcaact	cgttgctacg	ccatcacaa	ctggtgtatt	ccaccacttc	acgcagtgtc	6120
tgccaaaggc	agaagaaagt	cacatttgac	agactgcaag	ttctggacag	ccattaccag	6180

SEQLIST

gacgtgctca	aggaggtcaa	agcagcggcg	tcaaaagtga	aggctaactt	gctatccgta	6240
gaggaagctt	gcagcctgac	gccccacat	tcagccaaat	ccaagtttgg	ctatggggca	6300
aaagacgtcc	gttgccatgc	cagaaaggcc	gtagcccaca	tcaactccgt	gtggaaagac	6360
cttctggaag	acagtgtaac	accaattgac	actaccatca	tggccaagaa	cgaggttttc	6420
tgcgttcagc	ctgagaaggg	gggtcgttaag	ccagctcgtc	tcattcggtt	ccccgacctg	6480
ggcgtgcgcg	tgtgcgagaa	gatggccctg	tacgacgtga	ttagcaagct	ccccctggcc	6540
gtgatgggaa	gctcctacgg	attccaatac	tcaccaggac	agcgggttga	attcctctgt	6600
caagcgtgga	agtccaagaa	gacccccgat	gggttctcgt	atgatacccg	ctgttttgac	6660
tccacagtca	ctgagagcga	catccgtacg	gaggaggcaa	tttaccaatg	ttgtgacctg	6720
gacccccaa	cccgcgtggc	catcaagtcc	ctcactgaga	ggctttatgt	tgggggccct	6780
cttaccaatt	caagggggga	aaactgcggc	taccgcaggt	gccgcgcgag	cggcgtagct	6840
acaactagct	gtggtaacac	cctcacttgc	tacatcaagg	cccgggcagc	ctgtcgagcc	6900
gcagggctcc	aggactgcac	catgctcgtg	tgtggagacg	acttagtcgt	tatctgtgaa	6960
agtgcggggg	tccaggagga	cgcggcgagc	ctgagagcct	tcacggaggc	tatgaccagg	7020
tactccgccc	cccccgggga	ccccccacaa	ccagaatacg	acttggagct	tataacatca	7080
tgtccttcca	acgtgtcagt	cgccacacgac	ggcgtgga	agaggttcta	ctaccttacc	7140
cgtgacccta	caacccccct	cgcgagagcc	gctggggaga	cagcaagaca	cactccagtc	7200
aattcctggc	taggcaacat	aatcatgttt	gccccacac	tgtgggcgag	gatgatactg	7260
atgacctatt	tctttagcgt	cctcatagcc	agggatcagc	ttgaacaggc	tcttaactgt	7320
gagatctacg	gagcctgcta	ctccatagaa	ccactagatc	tacctccaat	cattcaaaga	7380
ctccatggcc	tcagcgcat	ttcactccac	agttactctc	caggtgaaat	caatagggtg	7440
gccgatgcc	tcagaaaact	tgggggtccc	cccttgcgag	cttggagaca	ccggggcccg	7500
agcgtccgcg	ctaggcttct	gtccagagga	ggcagggtcg	ccatatgtgg	caagtacctc	7560
ttcaactggg	cagtaagaac	aaagctcaaa	ctcactccaa	tagcggccgc	tggccggctg	7620
gacttgctcg	gttggttcac	ggctggctac	agcgggggag	acatttatca	cagcgtgtct	7680
catgcccggc	cccgcgtggt	ctggttttgc	ctactcctgc	tcgctgcagg	ggtaggcata	7740
tacctctctc	ccaaccgatg	aagggtgggg	taaacactcc	ggcctcttaa	gccatttcct	7800
gttttttttt	tttttttttt	tttttttttc	tttttttttt	tctttccttt	ccttcttttt	7860
ttcctttctt	tttcctttct	ttaatggtgg	ctccatctta	gccctagtca	cggctagctg	7920
tgaaggttcc	gtgagccgct	tgactgcaga	gagtgtctgt	actggcctct	ctgcagatca	7980
agt						7983

<210> 8

<211> 7989

<212> DNA

<213> Artificial Sequence

<220>

<223> Thepolynucleotide sequence encodes sequences from
HCV J4(J4 M/S)Replicons

<400> 8

gcccaccccc	gattgggggg	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tctttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgtcgtgcag	cctccaggac	120
ccccctcccc	gggagagcca	tagtggtctg	cggaaccggt	gagtacaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gatcaaccgc	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtgttggttc	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcacg	aatcctaaac	360
ctcaaagaaa	aaccaaaggg	cgcgccatga	ttgaacaaga	tggattgcac	gcaggttctc	420
cggccgcttg	ggtggagagg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgccgc	cgtgttccgg	ctgtcagcgc	aggggcgccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgccctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgtcac	tgaagcggga	agggactggc	660
tgtatttggg	cgaagtgccg	gggcaggatc	tcctgtcatc	tcaccttgct	cctgccgaga	720
aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	gcttgatccg	gctacctgcc	780
cattcgacca	ccaagcgaaa	catcgcatcg	agcgagcacg	tactcggatg	gaagccgggtc	840
ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttcg	900
ccaggctcaa	ggcgcgcatg	cccgcggcgc	aggatctcgt	cgtgaccat	ggcgatgcct	960
gcttgccgaa	tatcatgggt	gaaaatggcc	gcttttctgg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cgttggctac	ccgtgatatt	gctgaagagc	1080
ttggcggcga	atgggctgac	cgcttcctcg	tgctttacgg	tatcgccgct	cccgatctgc	1140
agcgcatacg	cttctatcgc	cttcttgacg	agtttctctg	agtttaaaca	gaccacaacg	1200
gtttccctct	agccggatca	attccggccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tgggaataagg	ccggtgtgcg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttg	gcaatgtgag	ggcccggaaa	cctggccctg	tcttcttgac	gagcatctct	1380
aggggtcttt	cccctctcgc	caaaggaatg	caaggtctgt	tgaatgtcgt	gaaggaagca	1440

SEQLIST

gttcctctgg	aagcttcttg	aagacaaaca	acgtctgtag	cgaccctttg	caggcagcgg	1500
aacccccac	ctggcgacag	gtgcctctgc	ggccaaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaacccca	gtgccacggt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggctctcct	caagcgtatt	caacaagggt	ctgaaggatg	cccagaagg	acccattgt	1680
atgggatctg	atctggggcc	tcgggtgcaca	tgctttacat	gtgttttagtc	gaggttaaaa	1740
aacgtctagg	ccccccgaac	cacggggacg	tggttttcct	ttgaaaaaca	cgataatacc	1800
atggcgacct	ttacggacct	ctcccaacag	acgcgaggcc	tacttggtcg	catcatcact	1860
agcctcacag	gcccgggacag	gaaccagggt	gagggggagg	tccaagtgg	ctccaccgca	1920
acacaatctt	tcctggcgac	ctgcgtcaat	ggcgtgtgtt	ggactgtcta	tcattggtgcc	1980
ggctcaaaga	cccttgccgg	cccaaagggt	ccaatcacc	aaatgtacac	caatgtagac	2040
ctggacctcg	tcggctggca	ggcgcccccc	ggggcgcgct	ccatgacacc	atgcagctgt	2100
ggcagctcgg	acctttactt	ggtcacgaga	catgctgatg	tcattccggt	gcgccggcga	2160
ggcgacagca	ggggaagtct	actctcccc	aggcccgtct	cctacctgaa	aggctcctcg	2220
ggtggtccat	tgctttgccc	ttcggggcac	gtcgtgggct	tcttcgggct	tgctgtgtgc	2280
acccgggggg	tcgcgaaggc	ggtggacttc	ataccctgtg	agtctatgga	aactaccatg	2340
cggtctccgg	tcttcacaga	caactcaacc	cccccggtg	taccgcagac	attccaagtg	2400
gcacatctgc	acgtctctac	tggcagcggt	aagagcacca	aagtggccgg	tgcgatgca	2460
gcccgaagggt	acaaggtgct	cgtcctgaac	ccgtccgttg	ccgccacctt	agggtttggg	2520
gcgtatatgt	ccaaggcaca	cggtatcgac	cctaactca	gaactgggg	aaggaccatt	2580
accacgggcg	gtctccattac	gtactccacc	tatggcaagt	tccttgccga	cggtggctgt	2640
tctggggggc	cctatgacat	cataatatgt	gatgagtgc	actcaactga	ctcgactacc	2700
atcttgggca	tcggcacact	cctggaccaa	gcggagacgg	ctggagcgcg	gctcgtcgtg	2760
ctcgccaccg	ctacaccttc	gggatccggt	accgtgccac	accccaatat	cgaggaaata	2820
ggcctgtcca	acaatggaga	gatccccctt	tatggcaaag	ccatccccat	tgaggccatc	2880
aaggggggga	ggcatctcat	tttctgccat	tccaagaaga	aatgtgacga	gctcgccgca	2940
aagctgacag	gcctcggact	gaacgctgta	gcatattacc	ggggccttga	tgtgtccgtc	3000
ataccgccta	tcggagacgt	cgttgtcgtg	gcaacagacg	ctctaattgac	gggtttcacc	3060
ggcgattttg	actcagtgat	cgactgcaat	acatgtgtca	cccagacagt	cgacttcagc	3120
ttggatccca	ccttcaccat	tgagacgacg	accgtgcccc	aagacgcgg	gtcgcgctcg	3180
caacggcgag	gtagaactgg	caggggtagg	agtggcatct	acaggtttgt	gactccagga	3240
gaacggccct	cgggcatggt	cgattcttcg	gtcctgtgtg	agtgtatga	cgcgggctgt	3300
gcttggtagt	agctcagccc	cgctgagacc	tcggttaggt	tgcgggctta	cctaaataca	3360
ccagggttgc	cgtctgccca	ggaccatctg	gagttctggg	agagcgtctt	cacaggcctc	3420
accacatag	atgccacctt	cctgtcccag	actaaacagg	caggagacaa	ctttccttac	3480
ctggtggcat	atcaagctac	agtgtgcgcc	agggctcaag	ctccacctcc	atcgtgggac	3540
caaatgtgga	agtgtctcat	acggctgaaa	cctacactgc	acggggccaac	acccctgtct	3600
tataggctag	gagcgcgtcca	aaatgaggtc	attcctcacac	accccataac	taaatacatc	3660
atggcatgca	tgtcggctga	cctggaggtc	gtcactagca	cctgggtgct	ggtaggcgga	3720
gtccttgcat	ctttggccgc	atactgcctg	acgacaggca	gtgtgggtcat	tgtgggcagg	3780
atcatcttgt	ccgggaagcc	agctgtcgtt	cccagacagg	aagtcctcta	ccaggagttc	3840
gatgatattg	aagagtgtgc	ctcacaaatt	ctctacatcg	agcagggaat	gcagctcgcc	3900
gagcaattca	agcaaaaggc	gctcgggttg	ttgcaaacgg	ccaccaagca	agcggaggct	3960
gctgtcccg	tggtggagtc	caagtggcga	gcccttgaga	ccttctgggc	gaagcacatg	4020
tggaattttca	tcagcggaat	acagtacctt	gcaggcttat	ccactctgcc	tggaaccctc	4080
gcgatagcat	cattgatggc	atttacagct	tctatcacta	gcccgcctac	cacccaaaac	4140
accctcttgt	ttaacattct	ggggggatgg	gtggctgccc	aactcgctcc	tcccagcgct	4200
gcgtcagctt	tcgtgggctg	cggcatcgcc	ggagcggctg	ttggcagcat	aggccttggg	4260
aaggtgctcg	tggacatctt	ggcgggctat	ggggcagggg	tagccggcgc	actcgtggcc	4320
tttaagggtca	tgagcggcga	ggtgccccct	accgaggacc	tggtcaactt	actccctgcc	4380
atcctctctc	ctggtgcccc	ggtcgtcggg	gtcgtgtgcg	cagcaatact	gcgtcggcac	4440
gtggggcccg	gagagggggc	tggtcagttg	atgaaccggc	tgatagcgtt	cgcttcgcgg	4500
ggtaaccacg	tctcccttac	gcactatgtg	cctgagagcg	acgtgcagc	acgtgtcact	4560
cagatcctct	ctagccttac	catcactcaa	ctgctgaagc	ggctccacca	gtggattaat	4620
gaggactgct	ctacgccatg	ctccggctcg	tggctaaggg	atgtttggga	ttggatatgc	4680
acggtgttga	ctgacttcaa	gacctggctc	cagtccaaac	tcctgccgcg	gttaccggga	4740
gtccctttcc	tgtcatgcca	acgcgggtac	aaggaggtct	ggcgggggga	cggcatcatg	4800
caaaccacct	gcccattgcg	agcacagatc	gccggacatg	tcaaaaacgg	ttccatgagg	4860
atcgtagggc	ctagaacctg	cagcaacacg	tggcacggaa	cgttccccat	caacgcatac	4920
accacgggac	cttgcacacc	ctccccggcg	cccaactatt	ccagggcgct	atggcgggtg	4980
gctgctgagg	agttacgtga	ggttacgcgt	gtgggggatt	tccactacgt	gacgggcatg	5040
accactgaca	acgtaaagtg	cccatgccag	gttccggccc	ccgaattctt	cacggagggtg	5100
gatggagtgc	ggttgcacag	gtacgctccg	gcgtgcaaac	ctcttctacg	ggaggacgtc	5160
acgttccgag	tcgggctcaa	ccaatacttg	gtcgggtcgc	agctcccatg	cgagcccgaa	5220
ccggacgtaa	cagtgtctac	ttccatgctc	accgatccct	cccacattac	agcagagacg	5280
gctaagcgta	ggctggctag	agggctctcc	ccctctttag	ccagctcatc	agctatccag	5340
ttgtctgcgc	cttctttgaa	ggcgacatgc	actaccacc	atgactcccc	ggacgctgac	5400
ctcatcgagg	ccaacctctt	gtggcgggcag	gagatgggct	gaaacatcac	tcgcgtggag	5460
tcagagaata	aggtagtaat	tctggactct	ttcgaaccgc	ttcacgcgga	gggggatgag	5520

SEQLIST

agggagatat	ccgtcgcggc	ggagatcctg	cgaaaatcca	ggaagttccc	ctcagcgttg	5580
cccataatggg	cacgcccggg	ctacaatcct	ccactgctag	agtcctggaa	ggaccccgga	5640
tacgtccctc	cggtggtaca	cggatgcccc	ttgccaccta	ccaaggctcc	tccaatacca	5700
cctccacgga	gaaagaggac	ggttgctctg	acagaatcca	atgtgtcttc	tgccctggcg	5760
gagctcgcca	ctaagacctt	cggtagctcc	ggatcgctcg	ccgttgatag	cggcacggcg	5820
accgcccttc	ctgacctggc	ctccgacgac	ggtgacaaag	gatccgacgt	tgagtcgtac	5880
tcctccatgc	cccccttga	aggggagccg	ggggaccccc	atctcagcga	cggggtcttg	5940
tctaccgtga	gtgaggaggc	tagtgaggat	gtcgtctgct	gctcaatgtc	ctatacgtgg	6000
acaggcgccc	tgatcacgcc	atgcgctgcg	gaggaaaagta	agctgcccac	caaccctgtg	6060
agcaactctt	tgctgctgca	ccacaacatg	gtctacgcca	caacatcccc	cagcgcaagc	6120
ctccggcaga	agaagggtcac	ctttgacaga	ttgcaagtcc	tggatgatca	ttaccgggac	6180
gtactcaagg	agatgaaggc	gaaggcgctc	acagttaagg	ctaagcttct	atctatagag	6240
gaggcctgca	agctgacgcc	cccacattcg	gccaaatcca	aatttggtga	tggggcaaa	6300
gacgtccgga	acctatccag	cagggccggt	aaccacatcc	gctccgtgtg	ggaggacttg	6360
ctggaagaca	ctgaaacacc	aattgacacc	accatcatgg	caaaaaatga	ggttttctgc	6420
gtccaaccag	agaagggggg	ccgcaagcca	gctcgccctt	tcgtattccc	agatttgggg	6480
gttcgtgtgt	gcgagaaaat	ggccctttac	gatgtggtct	ccaccctccc	tcaggccgtg	6540
atgggctctt	catacggatt	ccaatactct	cctggacagc	gggtcgagtt	cctggtgaat	6600
gcctggaaag	cgaagaaatg	ccctatgggc	ttcgcatatg	acaccgcgtg	ttttgactca	6660
acggctactg	agaatgacat	ccgtgttgag	gagtcaatct	accaatgttg	tgacttggcc	6720
cccgaagcca	gacaggccat	aagggtcgct	acagagcggc	tttacatcgg	gggccccctg	6780
actaattcta	aagggcagaa	ctgcggtat	cgccggtgcc	gcgcgagcgg	tgacttgacg	6840
accagctcgc	gtaataccct	cacatgtttac	ttgaaggccg	ctgcggcctg	tcgagctgcg	6900
aagctccagg	actgcacgat	gctcgtatgc	ggagacgacc	ttgtcgttat	ctgtgaaagc	6960
gcggggaccc	aagaggacga	ggcgagccta	cgggccttca	cggaggctat	gactagatac	7020
tctgcccccc	ctggggaccc	gccccaaacca	gaatacgact	tggagttgat	aacatcatgc	7080
tcctccaatg	tgctcagtcg	gcacgatgca	tctggcaaaa	gggtgtacta	tctcaccctg	7140
gacccccacca	cccccttgc	gcgggctgcg	tgggagacag	ctagacacac	tccagccaat	7200
tcctggctag	gcaacatcat	catgtatgcg	cccaccttgt	gggcaaggat	gatcctgatg	7260
actcatttct	tctccatcct	tctagctcag	gaacaacttg	aaaaagccct	agattgtcag	7320
atctacgggg	cctgttactc	cattgagcca	cttgacctac	ctcagatcat	tcaacgactc	7380
catggcctta	gcgcattttc	actccatagt	tactctccag	gtgagatcaa	taggggtggc	7440
tcatgcctca	ggaaacttgg	ggtaccgccc	ttgcgagtct	ggagacatcg	ggccagaaat	7500
gtccgcgcta	ggctactgtc	ccaggggggg	agggtcgcca	cttgtggcaa	gtacctcttc	7560
aactgggcag	taaggaccaa	gctcaaaact	actccaatcc	cggctgcgtc	ccagttggat	7620
ttatccagct	ggttcgttgc	tggttacagc	gggggagaca	tatatcacag	cctgtctcgt	7680
gccccacccc	gctgtttcat	ctcctacttt	ctgtaggggg	ctgtaggggg	aggcatctat	7740
ctactcccca	accgatgaac	ggggaccta	acactccagg	ccaataggcc	atcctgtttt	7800
tttccctttt	ttttttcttt	tttttttttt	tttttttttt	tttttttttt	ttctcctttt	7860
tttttcctct	ttttttcctt	ttctttcctt	tggtggctcc	atcttagccc	tagtcacggc	7920
tagctgtgaa	aggtccgtga	gccgcttgac	tgacagagag	gctgatactg	gcctctctgc	7980
agatcaagt						7989

<210> 9

<211> 7979

<212> DNA

<213> Artificial Sequence

<220>

<223> Thepolynucleotide sequence encodes sequences from
HCV J4(B/RI) Replicons

<400> 9

gccagcccc	gattgggggc	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tcctcacgca	gaaagcgctc	agccatggcg	ttagtatgag	tgctcgtgcag	cctccaggac	120
ccccctccc	gggagagcca	tagtgggtctg	cggaaccggt	gagtacaccg	gaattgcca	180
gacgaccggg	tcctttcttg	gatcaaacccg	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tgtccgagta	gtgttgggct	gcgaaaggcc	ttgtgggtact	gcctgatagg	300
gtgcttgca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcacg	aatcctaaac	360
ctcaaagaaa	aaccaaaggg	cgcgccatga	ttgaacaaga	tggattgcac	gcagggtctc	420
cggccgcttg	ggtggagagg	ctattcggtc	atgactgggc	acaacagaca	atcggtgctc	480
ctgatgccgc	gtgtttccgg	ctgtcagcgc	agggcgcccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgccctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgctac	tgaagcggga	agggactggc	660
tgctattggg	cgaagtgcg	gggcaggatc	tcctgtcatc	tcaccttgct	cctgccgaga	720
aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	gcttgatccg	gctacctgcc	780

SEQLIST

cattcgacca	ccaagcgaaa	catcgcatcg	agcgagcacg	tactcggatg	gaagccgggtc	840
ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttctg	900
ccaggctcaa	ggcgcgcatg	cccgcagggc	aggatctctg	cgtgacccat	ggcgatgcct	960
gcttgccgaa	tatcatgggtg	gaaaatggcc	gcttttctgg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cggtggctac	ccgtgatatt	gctgaagagc	1080
ttggcggcga	atgggctgac	cgcttctctg	tgctttacgg	tatcgccgct	cccgaattcg	1140
agcgcatcgc	cttctatcgc	cttcttgacg	agttcttctg	agttttaaaca	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tggaataaagg	ccggtgtgcg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttg	gcaatgtgag	ggccccgaaa	cctggccctg	tcttcttgac	gagcattcct	1380
aggggtcttt	ccccctctgc	caaaggaatg	caaggtctgt	tgaatgtcgt	gaagggaagca	1440
gttctctctg	aagcttcttg	aagacaaaaca	acgtctgtag	cgaccctttg	caggcagcgg	1500
aacccccac	ctggcgacag	gtgcctctgc	ggccaaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaacccca	gtgccacggt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggctctcct	caagcgattt	caacaagggg	ctgaaggatg	cccagaaggt	accccatgtg	1680
atgggatctg	atctggggcc	tcggtgcaca	tgctttacat	gtgttttagtc	gaggttaaaa	1740
aacgtctagg	ccccccgaac	cacggggacg	tggttttctt	ttgaaaaaca	cgataataacc	1800
atggcgcccta	ttacggcccta	ctcccaacag	acgcgaggcc	tacttggtcg	catcatcact	1860
agcctcacag	gccgggacag	gaaccagggtc	gagggggagg	tccaagtggg	ctccaccgca	1920
acacaatctt	tcctggcgac	ctgcgtcaat	ggcgtgtgtt	ggactgtcta	tcatggtgcc	1980
ggctcaaaga	cccttgccgg	cccaaagggc	ccaatcaccc	aaatgtacac	caatgtggac	2040
caggacctcg	tcggctggca	agcgcccccc	ggggcgcggt	ccttgacacc	atgcacctgc	2100
ggcagctcgg	acctttactt	ggctcacgag	gatgcgcgatg	tcattccggg	gcgcggggcg	2160
ggcgacagca	gggggagcct	actctcccc	aggcccgctt	cctacttgaa	gggctcttcg	2220
ggcgggtccac	tgctctgccc	ctcggggcac	gctgtgggca	tctttcgggc	tgccgtgtgc	2280
acccgagggg	ttgcaaggc	ggtggacttt	gtaccgctcg	agtctatgga	aaccactatg	2340
cggtcccccg	tcttcacgga	caactcgctc	cctccggccg	taccgcagac	attccagggt	2400
gccccatctac	acgccccctac	tggtagcggc	aagagcacta	aggtgccggc	tgcgtatgca	2460
gccaaggggt	ataaggtgct	tgtcctgaac	ccgtccgtcg	ccgccaccct	aggtttcggg	2520
gcgtatatgt	ctaaggcaca	tggtagcgac	cctaacatca	gaaccggggg	aaggaccatc	2580
accacgggtg	cccccatcac	gtactccacc	tatggcaagt	ttcttgccga	cggtggttgc	2640
tctggggggc	cctatgacat	cataatatgt	gatggatgcc	actcaactga	ctcgaccact	2700
atcctgggca	tcggcacagt	cctggaccaaa	ctggagacgg	ctggagcgcg	actcgctcgt	2760
ctcgccaccg	ctacgcctcc	gggatcggtc	accgtgccac	atccaaacat	cgaggagggtg	2820
gctctgtcca	gcactggaga	aatccccctt	tatggcaaag	ccatccccat	cgagaccatc	2880
aaggggggga	ggcacctcat	tttctgccat	tccaagaaga	aatgtgatga	gctcgccgct	2940
aagctgtccg	gcctcgact	caatgctgta	gcataattacc	ggggccttga	tgtatccgtg	3000
ataccaacta	gcggagacgt	cattgtcgta	gcaacggacg	ctctaattgac	gggctttacc	3060
ggcgattttcg	actcagtgat	cgactgcaat	acatgtgtca	cccagacagt	cgacttcagc	3120
ctggaccgga	ccttcaccat	tgagacgacg	accgtgccac	aagacgcggg	gtcacgctcg	3180
cagcggcgag	gcaggactgg	taggggcagg	atggcgcttt	acaggtttgt	gactccaggga	3240
gaacggccct	cgggcatgtt	cgattccctg	gttctgtgcg	agtgtatgta	cgcgggctgt	3300
gcttggtacg	agctcacgcc	cgccgagacc	tcagttagggt	tgccggctta	cctaaacaca	3360
ccagggtttgc	ccgtctgcca	ggaccatctg	gagttctggg	agagcgctct	tacaggcctc	3420
acccacatag	acgcccattt	cttgtccccc	actaagcagg	caggagacaa	cttcccctac	3480
ctggtagcat	accagctcac	gggtgtgcgc	aggtgtcagg	ctccacctcc	atcgtgggag	3540
caaatgtgga	agtgtctcat	acggctaaag	cctacgctgc	acgggccaac	gcccctgctg	3600
tataggctgg	gagccgttca	aaacgaggtt	actaccacac	accccataac	caaatacatc	3660
atggcatgca	tgtcggctga	cctggaggtc	gtcacgagca	cctgggtgct	ggtaggcgga	3720
gtcctagcag	ctctggccgc	gtattgcctg	acaacaggga	gcgtgggtcat	tgtgggcagg	3780
atcatcttgt	ccggaagacc	ggccatcatt	cccgcaggag	aagtccttta	ccgggagttc	3840
gatgagatgg	aagagtgcgc	ctcacacctc	ccttacatcg	aacagggaat	gcagctcgcc	3900
gaacaattca	aacagaaggc	aatcggggtg	ctgcaaacag	ccaccaagca	agcggagggt	3960
gctgctcccg	tgggtggaatc	caagtggcgg	accctcgaag	ccttctgggc	gaagcatatg	4020
tggaatttca	tcagcgggat	acaatattta	gcaggcttgt	ccactctgcc	tggcaacccc	4080
gcgatagcat	cactgatggc	attcacagcc	tctatcacca	gcccgtcac	cacccaacat	4140
accctcctgt	ttaacatcct	gggggggatg	gtggccgccc	aacttgctcc	tcccagcgct	4200
gcttctgctt	tcgtaggcgc	cggcacgcgt	ggagcggctg	ttggcagcat	aggccttggg	4260
aaggtgcttg	tggatatattt	ggcagggtat	ggagcagggg	tggcaggcgc	gctcgtggcc	4320
tttaagggtca	tgagcggcga	gtagccctcc	accgaggacc	tggttaacct	actccctgct	4380
atcctctccc	ctggcgccct	agtcgtcggg	gtcgtgtgcg	cagcgatact	gcgtcggcac	4440
gtgggcccag	gggagggggc	tgtgcagtgg	atgaaccggc	tgatagcggt	cgcttcgcgg	4500
ggtaaccacg	tctccccac	gcactatgtg	cctgagagcg	acgctgcagc	acgtgtcact	4560
cagatcctct	ctagtcttac	catcactcag	ctgctgaaga	ggcttcacca	gtggatcaac	4620
gaggactgct	ccacgccatg	ctccggctcg	tggctaagag	atgtttggga	ttggatatgc	4680
acgggtgttg	ctgattttcaa	gacctggctc	cagtccaagc	tcctgccgcg	attgccggga	4740
gtccccctct	tctcatgtca	acgtgggtac	aagggaagtct	ggcggggcga	cggcatcatg	4800
caaaccacct	gccccatgtg	agcacagatc	accggacatg	tgaaaaacgg	ttccatgagg	4860

SEQLIST

atcgtggggc	ctaggacctg	tagtaacacg	tggcatggaa	cattccccc	taacgcgtac	4920
accacggggc	cctgcacgcc	ctccccggcg	ccaaattatt	ctagggcgct	gtggcggggtg	4980
gctgctgagg	agtacgtgga	ggttacgcgg	gtgggggatt	tccactacgt	gacgggcatg	5040
accactgaca	acgtaaagtg	cccgtgtcag	gttccggccc	ccgaattctt	cacggagggtg	5100
gatggagtg	ggttgcacag	gtacgctccg	gcgtgcaaac	ctcttctacg	ggaggacgtc	5160
acgttccagg	tcgggctcaa	ccaatacttg	gtcgggtcgc	agctcccatg	cgagcccga	5220
ccggacgtaa	cagtgccttac	ttccatgctc	accgatccct	cccacattac	agcagagacg	5280
gctaagcgta	ggctggctag	agggctctccc	ccctctttag	ccagctcatc	agctatccag	5340
ttgtctgcgc	cttctttgaa	ggcgacatgc	actaccacc	atgactcccc	ggacgctgac	5400
ctcatcgagg	ccaacctctt	gtggcgggcag	gagatggg	gaaacatcac	tcgctggag	5460
tcagagaata	aggtagta	tctggactct	ttcgaaccgc	ttcacgcgga	gggggatgag	5520
aggagatat	ccgtcgcggc	ggagatcctg	cgaaaatcca	ggaagttccc	ctcagcgttg	5580
cccatatggg	cacgcccga	ctacaatcct	ccactgctag	agtccctgga	ggaccggag	5640
tacgtccctc	cgggtggtaca	cggatgccca	ttgccacctc	ccaaggctcc	tccaatacca	5700
cctccacgga	gaaagaggac	ggttgtcctg	acagaatcca	atgtgtcttc	tgcttggcg	5760
gagctcgcca	ctaagacctt	cggtagctcc	ggatcgctcg	ccgttgatag	cggcacggcg	5820
accgcccttc	ctgacctggc	ctccgacgac	ggtgacaaag	gatccgacgt	tgagtcgtac	5880
tcctccatgc	cccccttga	aggggagccg	ggggaccctc	atctcagcga	cgggtcttgg	5940
tctaccgtga	gtgaggagg	tagtgaggat	gtcgtctgct	gctcaatgtc	ctatacgtgg	6000
acaggcgccc	tgatcacgcc	atgcgctgcg	gaggaaagta	agctgcccat	caaccggtg	6060
agcaactctt	tgctgcgtca	ccacaacatg	gtctacgcca	caacatcccg	cagcgcaagc	6120
ctccggcaga	agaaggtcac	ctttgacaga	ttgcaagtcc	tgatgatca	ttaccgggac	6180
gtactcaagg	agatgaaggc	gaaggcgctc	acagtttaagg	ctaagcttct	atctatagag	6240
gaggcctgca	agctgacgcc	cccacattcg	gccaaatcca	aatttggtca	tggggcaaag	6300
gacgtccgga	acctatccag	cagggccgtt	aaccacatcc	gctccgtgtg	ggaggacttg	6360
ctggaagaca	ctgaaacacc	aattgacacc	accatcatgg	caaaaagtga	ggttttctgc	6420
gtccaaccag	agaagggagg	ccgcaagcca	gctgcctta	tcgtattccc	agacctggga	6480
gttcgtgtat	gcgagaagat	ggccctttac	gacgtggtct	ccacccttcc	tcaggccgtg	6540
atgggctcct	catacggatt	tcaatactcc	cccaagcagc	gggtcgagtt	cctggtgaat	6600
acctggaaat	caaagaaatg	ccctatgggc	ttctcatatg	acaccgcgtg	ttttgactca	6660
acggctcactg	agagtgcac	tcgtgttgag	gagtcaattt	accaatgttg	tgacttggcc	6720
cccgaaggcca	gacaggccat	aaggctcgctc	acagagcggc	tttacatcgg	gggtcccctg	6780
actaactcaa	aagggcagaa	ctgcggttat	cgccggtgcc	gcgcaagtgg	cgtgctgacg	6840
actagctg	gtaataccct	cacatgttac	ttgaaggcca	ctgcagcctg	tcgagctgca	6900
aagctccagg	actgcacgat	gctcgtgaac	ggagacgacc	ttgtcgttat	ctgtgaaagc	6960
gcgggaaccc	aggaggatgc	ggcggcccta	cgagccttca	cggaggctat	gactaggat	7020
tccgcccccc	ccggggatcc	gcccccaacca	gaatacgacc	tggagctgat	aacatcatgt	7080
tcctccaatg	tgctagtcgc	gcacgatgca	tctggcaaaa	gggtatacta	cctcaccctg	7140
gacccaccca	cccccttgc	acgggctg	tgaggagacag	ctagacacac	tccaatcaac	7200
tcttggttag	gcaatatcat	catgtatg	cccaccctat	gggcaaggat	gattctgatg	7260
actcactttt	tctccatcct	tctagctcaa	gagcaacttg	aaaaagccct	ggattgtcag	7320
atctacgggg	cttgctactc	cattgagcca	cttgacctac	ctcagatcat	tgaacgactc	7380
catggtctta	gcgcattttac	actccacagt	tactctccag	gtgagatcaa	taggggtggct	7440
tcatgcctca	ggaaacttgg	ggtaccaccc	ttgcgaacct	ggagacatcg	ggccagaagt	7500
gtccgcgcta	agctactgtc	ccaggggggg	agggccgcca	cttggtggcag	atacctcttt	7560
aaactgggag	taaggaccaa	gcttaaaactc	actccaatcc	cggccgcgctc	ccagctggac	7620
ttgtctggct	ggttcgtcgc	tggttacagc	gggggagaca	tatatcacag	cctgtctcgt	7680
gcccgaaccc	gctggtttcc	gttggtgccta	ctcctacttt	ctgtaggggt	aggcattttac	7740
ctgctcccca	accgatgaac	ggggagctaa	ccactccagg	ccttaagcca	tttctctgtt	7800
tttttttttt	tttttttttt	tttttctttt	ttttttcttt	tcctttcctt	ctttttttcc	7860
tttctttttt	ccttctttta	tggtggctcc	atcttagccc	tagtcacggc	tagctgtgaa	7920
aggtccgtga	gccgcatgac	tgcagagagt	gctgatactg	gcctctctgc	agatcaagt	7979

<210> 10

<211> 7979

<212> DNA

<213> Artificial Sequence

<220>

<223> Thepolynucleotide sequence encodes sequences from
HCV J4(J4B/R1(C))Replicons

<400> 10

gccagcccc	gattgggggc	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtagtag	tgctcgtcag	cctccaggac	120
ccccctccc	gggagagcca	tagtggtctg	cggaaaccgt	gagtacaccg	gaattgccag	180

SEQLIST

gacgaccggg	tcctttcttg	gatcaacccg	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtgttggttc	gcgaaaggcc	ttgtgggtact	gcctgatagg	300
gtgcttgca	gtgccccggg	aggtctcgt	gaccgtgcac	catgagcacg	aatcctaaac	360
ctcaaagaaa	aaccaaagg	cgcgccatga	ttgaacaaga	tggattgcac	gcaggttctc	420
cggccgcttg	gttgagaggg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgccgc	cgtgttccgg	ctgtcagcgc	agggcgccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgccctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgtcac	tgaagcggga	agggactggc	660
tgctattggg	cgaagtgccg	gggcaggatc	tcctgtcatc	tcaccttgct	cctgccgaga	720
aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	gcttgatccg	gctacctgcc	780
cattcgacca	ccaagcgaaa	catcgcatcg	agcgagcacg	tactcggatg	gaagccggtc	840
ttgtcgaatc	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttcg	900
ccaggctcaa	ggcgcgcata	cccgcaggcg	aggatctcgt	cgtgacccat	ggcgtatgct	960
gcttgccgaa	tatcatgggt	gaaaatggcc	gcttttcttg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cgttggttac	ccgtgatatt	gctgaagagc	1080
ttggcggcga	atgggctgac	cgcttctctg	tgctttacgg	tatcgccgct	cccgatctgc	1140
agcgcacgcg	cttctatcgc	cttcttgacg	agtttcttct	agtttaaaca	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tggaaataagg	ccggtgtgctg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttg	gcaatgtgag	ggcccggaaa	cctggccctg	tcttcttgac	gagcattcct	1380
aggggtcttt	cccctctcgc	caaagggaatg	caaggtctgt	tgaatgtcgt	gaaggaagca	1440
gttctctctg	aagcttcttg	aagacaaaca	acgtctgtag	cgaccctttg	caggcagcgg	1500
aacccccac	ctggcctcag	gtgcctctgc	gtgcaaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaacccca	gtgccacggt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggctctcct	caagcgtatt	caacaagggg	ctgaaggatg	cccagaagg	accccatgtg	1680
atgggatctg	atctggggcc	tcggtgcaca	tgctttacat	gtgttttagt	gaggttaaaa	1740
aacgtcttag	ccccccgaac	cacggggacg	tggttttctt	ttgaaaaaca	cgataatacc	1800
atggcgccta	ttacggccta	ctcccaacag	acgcgaggcc	tacttggtcg	catcatcact	1860
agcctcacag	gccgggacag	gaaccagggt	gagggggagg	tccaagtgg	ctccaccgca	1920
acacaatctt	tcctggcgac	ctgctgcaat	ggcgtgtgtt	ggactgtcta	tcatggtgcc	1980
ggctcaaaga	cccttgccgg	cccaaagggg	ccaatcaccc	aaatgtacac	caatgtggac	2040
caggacctcg	tcggctggca	agcgcccccc	ggggcgcggt	ccttgacacc	atgcacctgc	2100
ggcagctcgg	acctttactt	ggtcacgagg	catgccgatg	tcattccgg	gcgccggcgg	2160
ggcgacagca	gggggagcct	actctcccc	aggcccgctt	cctacttgaa	gggctcttcg	2220
ggcggctccac	tgctctgccc	ctcggggcac	gctgtgggca	tctttcgggc	tgccgtgtgc	2280
acccgagggg	ttgcgaaggc	gggtggacttt	gtaccctcgt	agtctatgga	aaccactatg	2340
cgggtcccg	tcttcacgga	caactcgtcc	cctccggccg	taccgcagac	attccagggt	2400
gcccattctac	acgccccctac	tggtagcggc	aagagcacta	agggtgccgg	tgcgtatgca	2460
gcccagggtg	ataaggtgct	tgctctgaac	ccgtccgctc	ccgccaccct	agggttccgg	2520
gcgtatatgt	ctaaggcaca	tggtatcgac	cctaacatca	gaaccgggg	aaggaccatc	2580
accacgggtg	ccccctcac	gtactccacc	tatggcaagt	ttcttgccga	cgggtggttg	2640
tctggggg	cctatgacat	cataatatgt	gatgagtgcc	actcaactga	ctcgaccact	2700
atcctgggca	tcggcacagt	cctggaccac	gcggagacgg	ctggagcgcg	actcgtcgtg	2760
ctcgccaccg	ctacgcctcc	gggatcgggt	accgtgccac	atccaaacat	cgaggaggtg	2820
gctctgtcca	gcactggaga	aatccccctt	tatggcaaa	ccatccccat	cgagaccatc	2880
aaggggggga	ggcacctcat	tttctgcca	ttcgaagaaga	aatgtgatga	gctcgccg	2940
aagctgtccg	gcctcggact	caatgctgta	gcataattacc	ggggccttga	tgtatccgtc	3000
ataccaacta	gcggagacgt	cattgtcgta	gcaacggacg	ctctaattgac	gggctttacc	3060
ggcgatttctg	actcagtgat	cgactgcaat	acatgtgtca	cccagacagt	cgacttcagc	3120
ctggaccgga	ccttcaccat	tgagacgacg	accgtgccac	aagacgcgg	gtcacgctcg	3180
cagcggcgag	gcaggactgg	taggggcagg	atgggcattt	acaggtttgt	gactccagga	3240
gaacggccct	cgggcatgtt	cgattcctcg	gttctgtg	agtgtatga	cgcgggctgt	3300
gcttggtacg	agctcacg	cgccgagacc	tcagttagg	tgccgggctta	cctaaacaca	3360
ccagggttgc	ccgtctgcca	ggaccatctg	gagttctggg	agagcgtctt	tacaggcctc	3420
acccacatag	acgcccattt	ctgttcccag	actaagcagg	caggagacaa	cttcccctac	3480
ctggtagcat	accaggctac	gggtgtgcgc	agggtcagg	ctccacctcc	atcgtgggac	3540
caaagtgtga	agtgtctcat	acggctaaag	cctacgctgc	acgggccaac	gcccctgctg	3600
tataggctgg	gagccgttca	aaacgaggtt	actaccacac	accccataac	caaatacatc	3660
atggcatgca	cttctggctga	cctggagggt	gtcacagaca	cctgggtgct	ggtaggcgg	3720
gtcctagcag	gtctggccgc	gtattgctcg	acaacaggca	gcgtgggtcat	tgtgggcagg	3780
atcatcttgt	ccggaaagcc	ggccatcatt	cccgcagg	aagtccttta	ccgggagttc	3840
gatgagatgg	aagagtgcgc	ctcacacctc	ccttacatcg	aacagggaat	gcagctcgcc	3900
gaacaattca	aacagaaggc	aatcgggttg	ctgcaaacag	ccaccaagca	agcggaggct	3960
gctgtctccc	ttgttggatc	caagtggcgg	accctcgaag	ccttctgggc	gaagcatatg	4020
tggattttca	tcagcgggat	acaatattta	gcaggcttgt	ccactctgcc	tggcaacccc	4080
gcgatagcat	cactgatggc	attcacagcc	tctatcacca	gcccgtcac	cacccaacat	4140
accctcctgt	ttaacatcct	gggggggatg	gtggccgccc	aacttgctcc	tcccagcgct	4200
gcttctgctt	tcgtaggcgc	cggcatcgct	ggagcggctg	ttggcagcat	aggccttggg	4260

SEQLIST

aaggtgcttg	tggatatattt	ggcaggttat	ggagcagggg	tggcagggcg	gctcgtggcc	4320
tttaaggtca	tgagcggcga	gatgccctcc	accgaggacc	tggttaacct	actccctgct	4380
atcctctccc	ctggcgccct	agtcgtcggg	gtcgtgtgcg	cagcgatact	gcgtcggcac	4440
gtgggcccag	gggagggggc	tgtgcagtgg	atgaaccggc	tgatagcggt	cgcttcgcgg	4500
ggtaaccacg	tctccccac	gcactatgtg	cctgagagcg	acgctgcagc	acgtgtcact	4560
cagatcctct	ctagtcttac	catcactcag	ctgctgaaga	ggcttcacca	gtggatcaac	4620
gaggactgct	ccacgccatg	ctccggctcg	tggctaagag	atgtttggga	ttggatatgc	4680
acggtgttga	ctgatttcaa	gacctggctc	cagtccaagc	tcctgcccgc	attgcccggga	4740
gtccccttct	tctcatgtca	acgtgggtac	aagggagtct	ggcggggcga	cggcacatg	4800
caaaccacct	gcccattgtg	agcacagatc	accggacatg	tgaaaaacgg	ttccatgagg	4860
atcgtggggc	ctaggacctg	tagtaacacg	tggcatggaa	cattccccat	taacgcgtac	4920
accacggggc	cctgcacgcc	ctccccggcg	ccaaattatt	ctagggcgct	gtggcggggtg	4980
gctgctgagg	agtacgtgga	ggttacgcgg	gtgggggatt	tccactacgt	gacgggcatg	5040
accactgaca	acgtaaagtg	cccgtgtcag	gttccggccc	ccgaattctt	cacggagctg	5100
gatggagtgc	ggttgcacag	gtacgctccg	gcgtgcaaac	ctcttctacg	ggaggacgtc	5160
acgttccagg	tcgggctcaa	ccaatacttg	gtcgggtcgc	agctcccatg	cgagcccga	5220
ccggacgtaa	cagtgtttac	ttccatgctc	accgatccct	cccacattac	agcagagacg	5280
gctaagcgta	ggctggctag	aggggtctccc	cctcttttag	ccagctcctc	agctatccag	5340
ttgtctgcgc	cttctttgaa	ggcgacatgc	actaccaccc	atgactcccc	ggacgctgac	5400
ctcatcgagg	ccaacctctt	gtggcggcag	gagatgggcg	gaaacatcac	tcgctgggag	5460
tcagagaata	aggtagtaat	tctggactct	ttcgaaccgc	ttcacgcgga	gggggatgag	5520
agggagatat	ccgtcgcggc	ggagatcctg	cgaaaatcca	ggaagttccc	ctcagcgttg	5580
cccataatgg	cacgcccggg	ctacaactct	ccactgtcag	agtcctggaa	ggaccgggac	5640
tacgtccctc	cggtgggtaca	cggatgcccc	ttgccaccta	ccaaggctcc	tccaatacca	5700
cctccacgga	gaaagaggac	ggttgtcctg	acagaatcca	atgtgtcttc	tgctttggcg	5760
gagctcgcca	ctaagacctt	cggtagctcc	ggatcgtcgg	ccgttgatag	cggcacggcg	5820
accgcccctt	ctgacctggc	ctccgacgac	ggtgacaaag	gatccgacgt	tgagtcgtac	5880
tcctccatgc	cccccttga	aggggagccg	ggggaccctg	atctcagcga	cgggtcttgg	5940
tctaccgtga	gtgaggaggc	tagtgaggat	gtcgtctgct	gctcaatgtc	ctatacgtgg	6000
acaggcgccc	tgatcacgcc	atgcgctgcg	gaggaaagta	agctgcccac	caaccctgtg	6060
agcaactctt	tgtgtcgtca	ccacaacatg	gtctacgcca	caacatcccc	cagcgcaagc	6120
ctccggcaga	agaaggtcac	ctttgacaga	ttgcaagttc	tggatgatca	ttaccgggac	6180
gtactcaagg	agatgaaggc	gaaggcgctc	acagtttaagg	ctaagcttct	atctatagag	6240
gaggcctgca	agctgacgcc	cccacattcg	gccaaatcca	aatttggtca	tggggcaaaag	6300
gacgtccgga	acctatccag	cagggccggt	aaccacatcc	gctccgtgtg	ggaggacttg	6360
ctggaagaca	ctgaaacacc	aattgacacc	accatcatgg	caaaaagtga	ggttttctgc	6420
gtccaaccag	agaagggagg	ccgcaagcca	gctcgcctta	tcgtattccc	agacctggga	6480
gttcgtgtat	gcgagaagat	ggccctttac	gacgtggtct	ccacccttcc	tcaggccgtg	6540
atgggctcct	catacggaat	tcaatactcc	cccaagcagc	gggtcgagtt	cctgggtgaat	6600
acctggaaat	caaagaaatg	ccctatgggc	ttctcatatg	acaccgcgtg	ttttgactca	6660
acggtcactg	agatgtacat	tcgtgttgag	gagtcgaattt	accaatgttg	tgacttggcc	6720
cccgaggcca	gacaggccat	aagggtcgctc	acagagcggc	tttacatcgg	gggtcccctg	6780
actaactcaa	aagggcagaa	ctgcggttat	cgccggtgcc	gcgcaagtgg	cgtgctgacg	6840
actagctgcg	gtaataccct	cacatgttac	ttgaaggcca	ctgcagcctg	tcgagctgca	6900
aagctccagg	actgcacgat	gctcgtgaac	ggagacgacc	ttgtcgttat	ctgtgaaagc	6960
gcgggaacc	aggaggatgc	ggcggcccta	cgagccttca	cggaggctat	gactagggtat	7020
tccgcccccc	ccggggatcc	gccccaaacca	gaatacgacc	tggagctgat	aacatcatgt	7080
tcttccaatg	tgtcagtcgc	gcacgatgca	tctggcaaaa	gggtatacta	cctcaccctg	7140
gacccccacca	cccccttgc	acgggctgcg	tgggagacag	ctagacacac	tccaatcaac	7200
tcttggtctag	gcaatatcat	catgtatgcg	cccaccctat	gggcaaggat	gattctgtag	7260
actcactttt	tctccatcct	tctagctcaa	gagcaacttg	aaaaagccct	ggattgtcag	7320
atctacgggg	cttgctactc	cattgagcca	cttgacctac	ctcagatcat	tgaacgactc	7380
catgggtctta	gcgcattttac	actccacagt	tactctccag	gtgagatcaa	taggggtggct	7440
tcatgcctca	ggaaacttgg	ggtaccaccc	ttgcgaacct	ggagacatcg	ggccagaagt	7500
gtccgcgcta	agctactgtc	ccagggggggg	agggccgcca	cttgtggcag	ataacctctt	7560
aactgggcag	taaggaccaa	gcttaaaactc	actccaatcc	cggccgcgtc	ccagctggac	7620
ttgtctggct	ggttcgtcgc	tggttacagc	gggggagaca	tatatcacag	cctgtctcgt	7680
gcccgaaccc	gctggtttcc	gttgtgccta	ctcctacttt	ctgtaggggt	aggcattttac	7740
ctgtctccca	accgatgaac	ggggagctaa	ccattccagg	ccttaagcca	tttctgtttt	7800
tttttttttt	tttttttttt	tttttttttt	tttttttctt	tcctttctct	ctttttttcc	7860
tttctttttc	ccttctttta	tgggtggctcc	atcttagccc	tagtcacggc	tagctgtgaa	7920
aggtccgtga	gccgcttgac	tgcagagagt	gctgatactg	gcctctctgc	agatcaagt	7979

<210> 11
 <211> 7979
 <212> DNA

SEQLIST

<213> Artificial Sequence

<220>

<223> The polynucleotide sequence encodes sequences from
HCV J4 Replicons

<400> 11

gccagcccc	gattgggggc	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgctgtgcag	cctccaggac	120
ccccctccc	gggagagcca	tagtgggtctg	cggaaccggt	gagtacaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gatcaaccgc	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtgttggttc	gcgaaaggcc	ttgtgggtact	gcctgatagg	300
gtgcttgca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcacg	aatcctaaac	360
ctcaaagaaa	aaccaaaggg	cgcgccatga	ttgaacaaga	tggattgcac	gcaggttctc	420
cggccgcttg	ggtggagagg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgccgc	cgtgttcg	ctgtcagcgc	aggggcgccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgcctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgtcac	tgaagcggga	agggactggc	660
tgctattggg	cgaagtgcgg	gggcaggatc	tcctgtcatc	tcaccttgct	cctgccgaga	720
aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	gcttgatccg	gctaccctgcc	780
cattcgacca	ccaagcgaaa	catcgcatcg	agcgagcacg	tactcggatg	gaagccgggtc	840
ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttcg	900
ccaggctcaa	ggcgcgatg	cccgcgcg	aggatctcgt	cgtgacctat	ggcgtgacct	960
gcttgccgaa	tatcatggtg	gaaaatggcc	gcttttcttg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cgttggctac	ccgtgatatt	gctgaagagc	1080
ttggcggcga	atgggctgac	cgcttctctg	tgctttacgg	tatcgccgct	cccgattcgc	1140
agcgcatcgc	cttctatcgc	cttcttgacg	agttcttctg	agtttaaac	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tggaaataagg	ccggtgtg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttg	gcaatgtgag	ggcccggaaa	cctggccctg	tcttcttgac	gagcattcct	1380
aggggtcttt	cccctctcgc	caaaggaatg	caaggtctgt	tgaatgtcgt	gaaggaagca	1440
gttctctctg	aagcttcttg	aagacaaaca	acgtctgtag	cgaccctttg	caggcagcgg	1500
aacccccac	ctggcgacag	gtgcctctgc	ggccaaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaaccca	gtgccacgtt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggctctcct	caagcgtatt	caacaagggg	ctgaaggatg	cccagaagg	acccatttgt	1680
atgggatctg	atctggggcc	tcggtgcaca	tgctttacat	gtgtttagtc	gaggttaaaa	1740
aacgtctagg	cccccgaaac	cacggggacg	tggtttctct	ttgaaaaaca	cgataatacc	1800
atggcgccct	ttacggccta	ctcccaacag	acgcgaggcc	tacttggtcg	catcatcact	1860
agcctcacag	gccgggacag	gaaccaggct	gagggggagg	tccaagtgg	ctccaccgca	1920
acacaatctt	tcctggcgac	ctgcgtcaat	ggcgtgtgtt	ggactgtcta	tcatggtgcc	1980
ggtcctaaga	cccttgccgg	cccaaaggcg	ccaatcaccc	aaatgtacac	caatgtagac	2040
ctggacctcg	tcggctggca	ggcgcccccc	ggggcgcgct	ccatgacacc	atgcagctgt	2100
ggcagctcgg	acctttactt	ggtcacgaga	catgctgatg	tcattccgg	gcgccggcga	2160
ggcgacagca	ggggaagtct	actctcccc	aggcccgctt	cctacctgaa	aggctcctcg	2220
ggtggtccat	tgctttgccc	ttcgggggc	gtcgtggggc	tcttccgggc	tgctgtgtgc	2280
acccgggggg	tcggaaggcg	ggtggacttc	atacccggtg	agtcctatga	aactaccatg	2340
cggctctcgg	tcttcacaga	caactcaacc	cccccggtcg	taccgcagac	attccaagtg	2400
gcacatctgc	acgctcctac	tggcagcggc	aagagcacca	aagtgccggc	tgcgatgca	2460
gcccagggtg	acaaggtgct	cgctcctga	ccgtccgttg	ccgccacctt	agggtttggg	2520
gcgtatatgt	ccaagcgaca	cggtatcgac	ccatacatca	gaactggggt	aaggaccatt	2580
accacggcgg	gctccattac	gtactccacc	tatggcaagt	tccttgccga	cggtggctgt	2640
tctggggg	cctatgacat	cataatatgt	gatgagtgc	actcaactga	ctcgactacc	2700
atcttgggca	tcggcacagt	cctggaccac	gcggagacgg	ctggagcgcg	gctcgtcgtg	2760
ctcgccaccg	ctacacctcc	gggatcgggt	accgtgccac	accccaatat	cgaggaaata	2820
ggcctgtcca	acaatggaga	gatccccctt	tatggcaaa	ccatccccat	tgaggccatc	2880
aaggggggga	ggcatctcat	tttctgccat	tccaagaaga	aatgtgacga	gctcgccgca	2940
aagctgacag	gcctcggact	gaacgctgta	gcataattacc	ggggccttga	tgtgtccgtc	3000
ataccgccta	tcggagacgt	cgttgtcgtg	gcaacagacg	ctctaattgac	gggtttcacc	3060
ggcgattttg	actcagtgat	cgactgcaat	acatgtgtca	cccagacagt	gcacttcagc	3120
ttggatccca	ccttcaccat	tgagacgacg	accgtgcccc	aagacgcggg	gtcgcgctcg	3180
caacggcgag	gtagaactgg	caggggtagg	agtggcatct	acaggtttgt	gactccagga	3240
gaacggccct	cgggcatgtt	cgattcttcg	gtcctgtgtg	agtgtatga	cgcgggctgt	3300
gcttggtag	agctcacgcc	cgctgagacc	tcggttaggt	tgcgggctta	cctaaataca	3360
ccagggttgc	ccgtctgcca	ggaccatctg	gagttctggg	agagcgtctt	cacagggctc	3420
accacacatg	atgcccactt	cctgtcccag	actaaacagg	caggagacaa	ctttccttac	3480
ctggtggcat	atcaagctac	agtgtgcgcc	agggctcaag	ctccacctcc	atcgtgggac	3540
caaatgtgga	agtgtctcat	acggctgaaa	cctacactgc	acgggccaac	acccctgctg	3600
tataggctag	gagccgtcca	aaatgaggtc	atcctcacac	accccataac	taaatacatc	3660

SEQLIST

atggcatgca	tgtcggctga	cctggaggtc	gtcactagca	cctgggtgct	ggtaggcgga	3720
gtccttgtag	ctttggccgc	atactgcctg	acgacaggca	gtgtgggtcat	tgtgggcagg	3780
atcatcttgt	ccgggaagcc	agctgtcggt	cccgcaggga	aagtcctcta	ccaggagttc	3840
gatgagatgg	aagagtgtgc	ctcacaactt	ccttacatcg	agcagggaat	gcagctcgcc	3900
gagcaattca	agcaaaaggc	gctcgggttg	ttgcaaacgg	ccaccaagca	agcggaggct	3960
gctgtctccg	tgggtggagtc	caagtggcga	gcccttgaga	ccttctgggc	gaagcacatg	4020
tggaaattca	tcagcgggaat	acagtaccta	gcaggccttat	ccactctgcc	tggaaaacccc	4080
gcgatagcat	cattgatggc	atttacagct	tctatcacta	gcccgcctcac	cacccaaaac	4140
accctcctgt	ttaacatctt	ggggggatgg	gtggctgccc	aactcgctcc	tcccagcgct	4200
gcgtcagctt	tcgtggggcg	cgcatcgcc	ggagcggctg	ttggcagcat	aggccttggg	4260
aaggtgctcg	tggacatctt	ggcgggctat	ggggcagggg	tagccggcgc	actcgtggcc	4320
tttaagggtca	tgagcggcga	gggtgccctcc	accgaggacc	tggccaactt	actccctgcc	4380
atcctctctc	ctggtgccc	ggctcgtcgg	gtcgtgtgcg	cagcaatact	gcgtcggcac	4440
gtggggcccg	gagaggggg	tgtgcagtgg	atgaaccggc	tgatagcggt	cgcttcgcgg	4500
ggtaaccacg	tctcccttac	gcactatgtg	cctgagagcg	acgctgcagc	acgtgtcact	4560
cagatcctct	ctagccttac	catcactcaa	ctgctgaagc	ggctccacca	gtggattaat	4620
gaggactgct	ctacgccatg	ctccggctcg	tggctaaggg	atgtttggga	ttggatatgc	4680
acggtgttga	ctgacttcaa	gacctggctc	cagtcacaac	tcctgccgcg	gttaccggga	4740
gtcccttttc	tgtcatgcc	acgcgggtac	aaggaggtct	ggcgggggga	cgcatcatg	4800
caaaccacct	gccccatgcg	agcacagatc	gccggacatg	tcaaaaacgg	ttccatgagg	4860
atcgtagggc	ctagaacctg	cagcaacacg	tggcacggaa	cgttccccat	caacgcatac	4920
accacgggac	cttgacacac	ctccccggcg	cccaactatt	ccagggcgct	atggcgggtg	4980
gctgctgagg	agtacgtgga	ggttacgctg	gtgggggatt	tccactacgt	gacgggcatg	5040
accactgaca	acgtaaagtg	cccatggcag	gttccggccc	ccgaattctt	cacggagggtg	5100
gatggagtgc	ggttgcacag	gtacgctccg	gcgtgcaaac	ctcttctacg	ggaggacgtc	5160
acgttccagg	tcggggtcaa	ccaatacttg	gtcgggtcgc	agctcccatg	cgagcccga	5220
ccggacgtaa	cagtgtctac	ttccatgtct	accgatccct	cccacattac	agcagagacg	5280
gctaagcgta	ggctggctag	aggggtctccc	ccctctttag	ccagctcatt	agctatccag	5340
ttgtctgcgc	cttctttgaa	ggcgacatgc	actaccacc	atgactcccc	ggacgctgac	5400
ctcatcgagg	ccaacctctt	gtggcggcag	gagatgggcg	gaaacatcac	tcgcgtggag	5460
tcagagaata	aggtagtaat	tctggactct	ttcgaaccgc	ttcacgcgga	gggggatgag	5520
aggagatata	ccgtgcgcgg	ggagatcctg	cgaaaattcca	ggaagttccc	ctcagcgttg	5580
cccataatgg	cacgcgcgga	ctacaatcct	ccactgctag	agtcctggaa	ggacccggac	5640
tacgtccctc	cggtggtaca	cggtatgcca	ttgccacct	ccaaggctcc	tccaatacca	5700
cctccacgga	gaaagaggac	ggttgtcctg	acagaatcca	atgtgtcttc	tgcccttggcg	5760
gagctcgcca	ctaagacctt	cggtagctcc	ggatcgctcg	ccgttgatag	cggcacggcg	5820
aggcccttcc	ctgacctggc	ctccgacgac	ggtgacaaaag	gatccgacgt	tgagtcgtac	5880
tcctccatgc	cccccttga	aggggagccg	ggggaccccc	atctcagcga	cggtcttgg	5940
tctaccgtga	gtgaggaggc	tagtgaggat	gtcgtctgct	gctcaatgtc	ctatacgtgg	6000
acaggcgccc	tgatcacgcc	atgcgctgcg	gaggaaagta	agctgcccc	caacccgttg	6060
agcaactctt	tgtgtgcgtc	ccacaacatg	gtctacgcca	caacatccc	cagcgcaagc	6120
ctccggcaga	agaaggatc	ctttgacaga	ttgcaagtc	tggatgatca	ttaccgggac	6180
gtactcaagg	agatgaaggc	gaaggcgtcc	acagttaagg	ctaagcttct	atctatagag	6240
gaggcctgca	agctgacgcc	cccacattcg	gccaaatcca	aatttggcta	tggggcaaa	6300
gacgtccgga	acctatccag	cagggccggt	aaccacatcc	gctccgtgtg	ggaggacttg	6360
ctggaagaca	ctgaacacac	aattgacacc	accatcatgg	caaaaagtga	ggttttctgc	6420
gtccaaccag	agaaggagg	ccgcaagcca	gctcgcttta	tcgtattccc	agacctggga	6480
gttcgtgtat	gcgagaagat	ggccctttac	gacgtggtct	ccacccttcc	tcaggccgtg	6540
atgggtcctt	catacggatt	tcaatactcc	cccaagcagc	gggtcgagtt	cctggtgaat	6600
acctggaaat	caaagaaatg	ccctatgggc	ttctcatatg	acaccgctg	ttttgactca	6660
acggtcactg	agagtgcac	tcgtgttgag	gagtcaattt	accaatgttg	tgacttggcc	6720
cccgaggcca	gacaggccat	aaggctcgtc	acagagcggc	tttacatcgg	gggtcccctg	6780
actaactcaa	aagggcagaa	ctgcggttat	cgccggtgcc	gcgcaagtgg	cgtgctgacg	6840
actagctcgc	gtaataccct	cacatgttac	ttgaaggcca	ctgcagcctg	tcgagctgca	6900
aagctccagg	actgcacgat	gctcgtgaac	ggagacgacc	ttgtcgttat	ctgtgaaagc	6960
gcgggaaccc	aggaggatgc	ggcggcccta	cgagccttca	cggaggctat	gactagggtat	7020
tccgcccccc	ccggggatcc	gccccaaacca	gaatacgacc	tggagctgat	aacatcatgt	7080
tcctccaatg	tgtcagtcgc	gcacgatgca	tctggcaaaa	gggtatacta	cctcaccctg	7140
gacccaccaca	ccccctttgc	acgggctgcg	tggagacag	ctagacacac	tccaatcaac	7200
tcttggctag	cccaatctat	catgtatgcg	cccaccctat	gggcaaggat	gattctgatg	7260
actcactttt	tctccatcct	tctagctcaa	gagcaacttg	aaaaagccct	ggattgtcag	7320
atctacgggg	cttgctactc	cattgagcca	cttgacctac	ctcagatcat	tgaacgactc	7380
catggtctta	gcgcatttat	actccacagc	tactctccag	gtgagatcaa	taggggtggc	7440
tcactgcctca	ggaaactttg	ggtaccacct	ttgcgaacct	ggagacatcg	ggccagaagt	7500
gtccgcgcta	agctactgtc	ccaggggggg	agggccgcca	cttggtggcag	atacctcttt	7560
aactgggcag	taaggaccaa	gcttaaacct	actccaatcc	cggccgcgct	ccagctggac	7620
ttgtctggct	ggttcgtcgc	tggttacagc	gggggagaca	tatatcacag	cctgtctcgt	7680
gcccgaaccc	gctgggtttcc	gttgtgccta	ctcctacttt	ctgtaggggt	aggcatttac	7740

SEQLIST

ctgctcccca	accgatgaac	ggggagctaa	ccactccagg	ccttaagcca	tttctgttt	7800
tttttttttt	tttttttttt	tttttctttt	tttttttctt	tccttttctt	ctttttttcc	7860
tttctttttc	ccttctttta	tgggtggctcc	atcttagccc	tagtcacggc	tagctgtgaa	7920
aggtccgtga	gccgcgatgac	tgcagagagt	gctgatactg	gcctctctgc	agatcaagt	7979

<210> 12
 <211> 7979
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> The polynucleotide sequence encodes sequences from
 HCV J4 Replicons

<400> 12						
gccagcccc	gattgggggc	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgtcgtgcag	cctccaggac	120
ccccctccc	gggagagcca	tagtggctcg	cggaaccggt	gagtacaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gatcaaccgc	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtgttggttc	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgcca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcacg	aatcctaaac	360
ctcaaagaaa	aaccaaaggg	cgcgccatga	ttgaacaaga	tggattgcac	gcaggttctc	420
cggccgcttg	ggtggagagg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgccgc	cgtgttcccg	ctgtcagcgc	agggcgcccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgccctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	600
cgacggcgct	tccttgcgca	gctgtgctcg	acgttgctac	tgaagcggga	agggactggc	660
tgctattggg	cgaagtgcgc	gggcaggatc	tcctgtcatc	tcaccttgct	cctgccgaga	720
aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	gcttgatccg	gctacctgcc	780
cattcgacca	ccaagcgaac	catcgcatcg	agcgagcacg	tactcggatg	gaagccggct	840
ttgtcgatca	ggatgacttg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttcg	900
ccaggctcaa	ggcgcgatg	cccgacggcg	aggtactctg	cgtgaccat	ggcgatgcct	960
gcttgccgaa	tatcatggtg	gaaaatggcc	gcttttcttg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cgttggctac	ccgtgatatt	gctgaagagc	1080
ttggcggcga	atgggctgac	cgcttctctg	tgctttacgg	tatcgccgct	cccgattcgc	1140
agcgcacgcg	cttctatcgc	cttcttgacg	agtttctctg	agtttaaaaca	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tggaaataag	ccggtgtgcg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttt	gcaatgtgag	ggcccggaaa	cctggccctg	tcttcttgac	gagcattcct	1380
aggggtcttt	ccctctctgc	caaaggaatg	caaggtctgt	tgaatgtcgt	gaagggaagca	1440
gttccctctg	aagcttcttg	aagacaaaca	acgtctgtag	cgaccctttg	caggcagcgg	1500
aacccccac	ctggcgacag	gtgcctctgc	ggccaaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaacccca	gtgccacggt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggctctctt	caagcgtatt	caacaagggg	ctgaaggatg	cccagaagg	acccatttgt	1680
atgggatctg	atctggggcc	tcggtgcaca	tgctttacat	gtgttttagt	gaggttaaaa	1740
aacgtctagg	ccccccgaac	cacggggacg	tggttttcct	ttgaaaaaca	cgataatacc	1800
atggcgccta	ttacggccta	ctcccaacag	acgcgaggcc	tacttggtcg	catcatcact	1860
agcctcacag	gccgggacag	gaaccagggt	gagggggagg	tccaagtgg	ctccaccgca	1920
acacaatctt	tcctggcgac	ctgcgtcaat	ggcgtgtgtt	ggactgtcta	tcatggtgac	1980
ggctcaaaga	cccttgccgg	cccaaagggc	ccaatcaccc	aaatgtacac	caatgtagac	2040
ctggacctcg	tcggctggca	ggcgcccccc	ggggcgcgct	ccatgacacc	atgcagctgt	2100
ggcagctcgg	acctttactt	ggtcacgaga	catgctgatg	tcattccggt	gcgcccggcg	2160
ggcgacagca	ggggaagtct	actctcccc	aggcccgctt	cctacctgaa	aggctcctcg	2220
ggtggtccat	tgctttgccc	ttcggggcac	gtcgtgggcg	tcttcggggc	tgctgtgtgc	2280
acccgggggg	tcgcgaaggc	ggtggacttc	atacccgctg	agtctatgga	aactaccatg	2340
cggtctccgg	tcttcacaga	caactcaacc	ccccggctg	taccgcagac	attccaagtg	2400
gcacatctgc	acgctcctac	tggcagcggc	aagagcacca	aagtgcgggc	tgcgatgca	2460
gcccgaagggt	acaaggtgct	cgtcctgaac	ccgtccgttg	ccgccacctt	agggtttggg	2520
gcgtatatgt	ccaaggcaca	cggtatcgac	cctaacatca	gaactgggg	aaggaccatt	2580
accacgggcg	gctccattac	gtactccacc	tatggcaagt	tccttgccga	cgggtggctgt	2640
tctgggggcg	cctatgacat	cataatatgt	gatgagtgcc	actcaactga	ctcgactacc	2700
atcttgggca	tcggcacact	cctggaccaa	gcggagacgg	ctggagcgcg	gctcgtcgtg	2760
ctcgcaccgg	ctacaccttc	gggatcgggt	accgtgccac	accccaatat	cgaggaaaata	2820
ggcctgtcca	acaatggaga	gatccccctt	tatggcaaa	ccatccccat	tgaggccatc	2880
aaggggggga	ggcatctcat	tttctgccat	tccaagaaga	aatgtgacga	gctcgccgca	2940
aagctgacag	gcctcggact	gaacgctgta	gcataattacc	ggggccttga	tgtgtccgct	3000
ataccgccta	tcggagacgt	cgttgtcgtg	gcaacagacg	ctctaattgac	gggtttcacc	3060

SEQLIST

ggcgattttg	actcagtgat	cgactgcaat	acatgtgtca	cccagacagt	cgacttcagc	3120
ttggatccca	ccttcaccat	tgagacgacg	accgtgcccc	aagacgcggt	gtcgcgctcg	3180
caacggcgag	gtagaactgg	caggggtagg	agtggcatct	acaggtttgt	gactccagga	3240
gaacggccct	cgggcatgtt	cgattcttcg	gtcctgtgtg	agtgtatga	cgcgggctgt	3300
gcttggatat	agctcacgcc	cgctgagacc	tcggttaggt	tgcgggctta	cctaaataca	3360
ccagggttgc	ccgtctgcca	ggaccatctg	gagttctggg	agagcgtctt	cacaggcctc	3420
accacatag	atgcccactt	cctgtcccag	actaaacagg	caggagacaa	ctttccttac	3480
ctggtggcat	atcaagctac	agtgtgcgcc	agggctcaag	ctccacctcc	atcgtgggac	3540
caaatgtgga	agtgtctcat	acggctgaaa	cctacactgc	acgggccaac	acccctgctg	3600
tataggctag	gagccgtcca	aaatgaggtc	atcctcacac	accccataac	taaatacatc	3660
atggcatgca	tgtcggctga	cctggaggtc	gtcactagca	cctgggtgct	ggtaggcgga	3720
gtccttgcag	ctttggccgc	atactgcctg	acgacaggca	gtgtggtcat	tgtgggcag	3780
atcatcttgt	ccgggaagcc	agctgtcgtt	cccagacagg	aagtcctcta	ccaggagttc	3840
gatgagatgg	aagagtgtgc	ctcacaactt	ccttacatcg	agcagggaat	gcagctcgcc	3900
gagcaattca	agcaaaaggc	gctcgggttg	ttgcaaacgg	ccaccaagca	agcggaggct	3960
gctgtctccg	tggtggagtc	caagtggcga	gcccttgaga	ccttctgggc	gaagcacatg	4020
tggaatttca	tcagcggaat	acagtacctt	gcaggcttat	ccactctgcc	tggaaccccc	4080
gcgatagcat	cattgatggc	atttacagct	tctatcacta	gcccgcctac	cacccaaaac	4140
accctcctgt	ttaacatctt	ggggggatgg	gtggctgccc	aactcgctcc	tcccagcgct	4200
gcgtcagctt	tcgtgggcgc	cgcatcgcgc	ggagcggctg	ttggcagcat	aggccttggg	4260
aaggtgctcg	tggacatctt	ggcgggctat	ggggcagggg	tagccggcgc	actcgtggcc	4320
tttaaggta	tgagcggcga	ggtgcccctc	accgaggacc	tggtcaactt	actccctgcc	4380
atcctctctc	ctggtgcccc	ggtcgtcggg	gtcgtgtgcg	cagcaatact	gcgtcggcac	4440
gtgggcccgg	gagagggggc	tgtgcagtgg	atgaaccggc	tgatagcggt	cgcttcgcgg	4500
ggtaaccacg	tctcccctac	gcactatgtg	cctgagagcg	acgctgcagc	acgtgtcact	4560
cagatcctct	ctagccttac	catcactcaa	ctgctgaagc	ggctccacca	gtggattaat	4620
gaggactgct	ctacgccatg	ctccggctcg	tggtctaagg	atgtttggga	ttggatatgc	4680
acggtgttga	ctgacttcaa	gacctggctc	cagtccaaac	tcctgcccgc	gttaccggga	4740
gtccctttcc	tgtcatgcca	acgcgggtac	aagggagtct	ggcgggggga	cggcatcatg	4800
caaaccacct	gcccattgcg	agcacagatc	gccggacatg	tcaaaaacgg	ttccatgagg	4860
atcgtagggc	ctagaacctg	cagcaaacag	tggcacggaa	cgttccccat	caacgcatac	4920
accacgggac	cttgacacc	ctccccggcg	cccaactatt	ccagggcgct	atggcgggtg	4980
gctgctgagg	agttacgtga	ggttacgcgt	gtgggggatt	tccactacgt	gacgggcatg	5040
accactgaca	acgtaaagtg	cccatgccag	gttccggccc	ccgaattctt	cacggagggtg	5100
gatggagtgc	ggttgccacg	gtacgctccg	gcgtgcaaac	ctcttctacg	ggaggacgtc	5160
acgttccagg	tcgggctcaa	ccaatacttg	gtcgggtcgc	agctcccatg	cgagcccgaa	5220
cggagctaa	cagtgtttac	ttccatgctc	accgatccct	cccacattac	agcagagacg	5280
gctaagcgta	ggctggctag	agggtctccc	ccctctttag	ccagctcatc	agctatccag	5340
ttgtctgcgc	cttctttgaa	ggcgacatgc	actaccacc	atgactcccc	ggacgctgac	5400
ctcatcgagg	ccaacctctt	gtggcgcgag	gagatgggcg	gaaacatcac	tcgcgtggag	5460
tcagagaata	aggtagtaat	tctggactct	ttcgaaccgc	ttcacgcgga	gggggatagg	5520
agggagatat	ccgtcgcggc	ggagatcctg	cgaaaatcca	ggaagttccc	ctcagcgtag	5580
cccatatggg	cacgcccggg	ctacaatcct	ccactgctag	agtcctggaa	ggacccggac	5640
tacgtccctc	cgggtggtaca	cggatgcccc	ttgccacctt	ccaaggctcc	tccaatacca	5700
cctccacgga	gaaagaggac	ggttgtcctg	acagaatcca	atgtgtcttc	tgcttggcg	5760
gagctcgcca	ctaagacctt	cggtagcttc	ggatcgtcgg	ccgttgatag	cggcacggcg	5820
accgcccttc	ctgacctggc	ctccgacgac	ggtgacaaag	gatccgacgt	tgagtctgac	5880
tcttccatgc	cccccttga	aggggagccg	ggggaccccc	atctcagcga	cgggtcttgg	5940
tctaccgtga	gtgaggaggc	tagtgaggat	gtcgtctgct	gctcaatgtc	ctatacgtgg	6000
acaggcgccc	tgatcacgcc	atgcgtgctg	gaggaaagta	agctgccccat	caacccgttg	6060
agcaactctt	tgtctgcgtc	ccacaacatg	gtctacgcca	caacatcccc	cagcgcaagc	6120
ctccggcaga	agaagggtcac	ctttgacaga	ttgcaagtcc	tggaatgatca	ttaccgggac	6180
gtactcaagg	agatgaaggc	gaaggcgctc	acagtttaagg	ctaagcttct	atctatagag	6240
gaggcctgca	agctgacgcc	cccacattcg	gccaaatcca	aatttggcta	tggggcaaa	6300
gacgtccgga	acctatccag	cagggccgtt	aaccacatcc	gctccgtgtg	ggaggacttg	6360
ctggaagaca	ctgaaacacc	aattgacacc	accatcatgg	caaaaagtga	ggttttctgc	6420
gtccaaccag	agaaggggag	ccgcaagcca	gctcgcctta	tcgtattccc	agacctggga	6480
gttcgtgtat	gcgagaagat	ggccctttac	gacgtggtct	ccacccttcc	tcaggccgtg	6540
atgggctcct	catacggatt	tcaatactcc	cccaagcagc	gggtcagagt	cctggtgaat	6600
acctggaaat	caaagaaatg	ccctatgggc	ttctcatatg	acacccgctg	ttttgactca	6660
acggctactg	agagtgcact	tcgtgttgag	gagtcaattt	accaatgttg	tgacttggcc	6720
cccgaggcca	gacaggccat	aaggctcgctc	acagagcggc	tttacatcgg	gggtcccctg	6780
actaactcaa	aagggcagaa	ctgcggttat	cgccggtgcc	gcgcaagtgg	cgtgtgacg	6840
actagctgcg	gtaataccct	cacatgttac	ttgaaggcca	ctgcagcctg	tcgagctgca	6900
aagctccagg	actgcacgat	gctcgtgaac	ggagacgacc	ttgtcgttat	ctgtgaaagc	6960
gcgggaaccc	aggaggatgc	ggcggcccta	cgagccttca	cggaggctat	gactaggtat	7020
tccgcccccc	ccggggatcc	gccccaacca	gaatacgacc	tggagctgat	aacatcatgt	7080
tcctccaatg	tgtcagtcgc	gcacgatgca	tctggcaaaa	gggtatacta	cctcacccgt	7140

SEQLIST

gacccaccca	cccccttgc	acgggctgcg	tgggagacag	ctagacacac	tccaatcaac	7200
tcttggttag	gcaatatcat	catgtatgcg	cccaccctat	gggcaaggat	gattctgatg	7260
actcactttt	tctccatcct	tctagctcaa	gagcaacttg	aaaaagccct	ggattgtcag	7320
atctacgggg	cttgctactc	cattgagcca	cttgacctac	ctcagatcat	tgaacgactc	7380
catggcttta	gcgcattttac	actccacagt	tactctccag	gtgagatcaa	taggggtggct	7440
tcatgcctca	ggaaacttgg	ggtaccaccc	ttgcgaacct	ggagacatcg	ggccagaagt	7500
gtccgcgcta	agctactgtc	ccagggggggg	agggccgcca	cttgtggcag	atacctcttt	7560
aactgggcag	taaggacca	gcttaaaactc	actccaatcc	cggccgcgtc	ccagctggac	7620
ttgtctggct	ggttcgtcgc	tggttacagc	gggggagaca	tatatcacag	cctgtctcgt	7680
gcccgaaccc	gctggtttcc	gttgtgccta	ctcctacttt	ctgtaggggt	aggcatttac	7740
ctgctcccca	accgatgaac	ggggagctaa	ccactccagg	ccttaagcca	tttcctgttt	7800
tttttttttt	tttttttttt	tttttctttt	tttttttctt	tcctttcctt	ctttttttcc	7860
tttctttttc	ccttctttta	tggtagctcc	atcttagccc	tagtcacggc	tagctgtgaa	7920
aggtccgtga	gccgcttgac	tgcagagagt	gctgatactg	gcctctctgc	agatcaagt	7979

<210> 13

<211> 7989

<212> DNA

<213> Artificial Sequence

<220>

<223> Thepolynucleotide sequence encodes sequences from
HCV J4(BB7/J4NS5B)Replicons

<400> 13

gccagcccc	gattgggggc	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgctcgtcag	cctccaggac	120
ccccctccc	gggagagcca	tagtggtctg	cggaaccggt	gagtacaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gatcaacccg	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtggttgggtc	gcgaaaggcc	ttgtgggtact	gcctgatagg	300
gtgcttgcca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcacg	aatcctaaac	360
ctcaaagaaa	aaccaaaggg	cgcgccatga	ttgaacaaga	tggattgcac	gcagggttctc	420
cggccgcttg	ggtggagagg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgccgc	cgtgttccgg	ctgtcagcgc	aggggcgccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgccctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgtcac	tgaagcggga	agggactggc	660
tgctattggg	cgaagtgccg	gggcaggatc	tcctgtcatc	tcaccttgct	cctgcccaga	720
aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	gcttgatccg	gctacctgcc	780
cattcgacca	ccaagcgaaa	catcgcatcg	agcgagcacg	tactcggatg	gaagccgggtc	840
ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttcg	900
ccaggctcaa	ggcgcgcgatg	cccgcggcgc	aggatctcgt	cgtgacctat	ggcgaatgct	960
gcttgccgaa	tatcatggtg	gaaaatggcc	gcttttcttg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cgttggctac	ccgtgatatt	gctgaagagc	1080
ttggcgcgca	atgggctgac	cgcttctctg	tcgtttacgg	tatcgccgct	cccgaattcg	1140
agcgcatacg	cttctatcgc	cttcttgacg	agttcttctg	agtttaaaac	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tggaaataagg	ccggtgtgcg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttg	gcaatgtgag	ggccccgaaa	cctggccctg	tcttcttgac	gagcattcct	1380
aggggtcttt	ccccctctgc	caaagggaatg	caaggctctg	tgaatgtcgt	gaaggaagca	1440
gttctctctg	aagcttcttg	aagacaaaac	acgtctgtag	cgaccctttg	caggcagcgg	1500
aaccccccac	ctggcgacag	gtgcctctgc	ggccaaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaaccccc	gtgccacggt	gtgagtggga	tagttgtgga	aagagtcaaa	1620
tggctctcct	caagcgtatt	caacaagggg	ctgaaggatg	cccagaagggt	acccatttgt	1680
atgggatctg	atctggggcc	tcgggtgcaca	tgctttacat	gtgttttagtc	gaggttaaaa	1740
aacgtctagg	ccccccgaac	cacggggacg	tggttttcct	ttgaaaaaca	cgataatacc	1800
atggcgctta	ttacggccta	ctcccaacag	acgcgaggcc	tacttggtctg	catcatcatc	1860
agcctcacag	gccgggacag	gaaccaggatc	gagggggagg	tccaagtgggt	ctccaccgca	1920
acacaactct	tcctggcgag	ctgcgtcaat	ggcgtgtgtt	ggactgtcta	tcatgggtgcc	1980
ggctcaaaga	cccttgccgg	cccaaagggc	ccaatcacc	aaatgtacac	caatgtggac	2040
caggacctcg	tcggctggca	agcgcctccc	ggggcgcggt	ccttgacacc	atgcacctgc	2100
ggcagctcgg	acctttactt	ggtcacgagg	catgccgatg	tcattccggt	gcgccggcgg	2160
ggcgacagca	gggggagcct	actctccccc	aggcccgtct	cctacttgaa	gggctcttcg	2220
ggcgtccac	tgctctgccc	ctcggggcac	gctgtgggca	tctttcgggc	tgccgtgtgc	2280
acccgagggg	ttgcgaaggc	ggtggacttt	gtaccgcgtc	agtctatgga	aaccactatg	2340
cggctccccg	tcttcacgga	caactcgtcc	cctccggccg	taccgcagac	attccagggtg	2400
gcccattctac	acgccccctac	tggtagcggc	aagagcacta	aggtgccggc	tcgctatgca	2460

SEQLIST

gccaaggggt	ataaggtgct	tgtcctgaac	ccgtccgtcg	ccgccaccct	aggtttcggg	2520
gcgtatatgt	ctaaggcaca	tgggtatcgac	cctaacatca	gaaccggggg	aaggaccatc	2580
accacgggtg	cccccatcac	gtactccacc	tatggcaagt	ttcttgccga	cggtggttgc	2640
tctgggggcg	cctatgacat	cataatatgt	gatgagtgcc	actcaactga	ctcgaccact	2700
atcctgggca	tcggcacagt	cctggaccaa	gcggagacgg	ctggagcgcg	actcgtcgtg	2760
ctcgccaccg	ctacgcctcc	gggatcggtc	accgtgccac	atccaaacat	cgaggagggtg	2820
gctctgtcca	gcactggaga	aatccccctt	tatggcaaag	ccatccccat	cgagaccatc	2880
aaggggggga	ggcacctcat	tttctgccat	tccaagaaga	aatgtgatga	gctcgccgcg	2940
aagctgtccg	gcctcggact	caatgctgta	gcatattacc	ggggccttga	tgtatccgtc	3000
ataccaacta	gcggagacgt	cattgtcgta	gcaacggacg	ctctaatagac	gggctttacc	3060
ggcgatttgc	actcagtgat	cgactgcaat	acatgtgtca	cccagacagt	cgacttcagc	3120
ctggaccgga	ccttcaccat	tgagacgacg	accgtgccac	aagacgcggg	gtcacgctcg	3180
cagcggcgag	gcaggactgg	taggggcagg	atgggcattt	acaggtttgt	gactccagga	3240
gaacggccct	ggggcatgtt	cgattcctcg	gttctgtgcg	agtgttatga	cgcgggctgt	3300
gcttggtacg	agctcacgcc	cgccgagacc	tcagttagggt	tgcgggctta	cctaaacaca	3360
ccagggttgc	ccgtctgcca	ggaccatctg	gagttctggg	agagcgtctt	tacaggcctc	3420
acccacatag	acgcccattt	cttgtcccg	actaagcagg	caggagacaa	cttcccctac	3480
ctggtagcat	accaggctac	gggtgtgcgc	agggtcagg	ctccacctcc	atcgtaggac	3540
caaagtgtga	agtgtctcat	acggctaaag	cctacgctgc	acgggccaac	gcccctgctg	3600
tataggctgg	gagccgttca	aaacgaggtt	actaccacac	accccataac	caaatacatc	3660
atggcatgca	tgtcggctga	cctggaggctc	gtcacgagca	cctgggtgct	ggtaggcgga	3720
gtcctagcag	ctctggccgc	gtattgcctg	acaacaggca	gcgtgggtcat	tgtgggcagg	3780
atcatcttgt	ccggaaagcc	ggccatcatt	cccgcagggg	aagtccttta	ccgggagttc	3840
gatgagatgg	aagagtgcgc	ctcacacctc	ccttacatcg	aacagggaat	gcagctcgcc	3900
gaacaattca	aacagaaggc	aatcgggttg	ctgcaaacag	ccaccaagca	agcggagggt	3960
gctgtctccc	tgggtggaatc	caagtggcgg	accctcgaag	ccttctgggc	gaagcatatg	4020
tggaaattca	tcagcgggat	acaatattta	gcaggcttgt	ccactctgcc	tggcaacccc	4080
gcgatagcat	cactgatggc	attcacagcc	tctatcacca	gcccgtcac	cacccaacat	4140
accctcctgt	ttaacatcct	ggggggatgg	gtggccgccc	aacttgctcc	tcccagcgct	4200
gcttctgctt	tcgtaggcgc	cggcatcgct	ggagcggctg	ttggcagcat	aggccttggg	4260
aagtggttgg	tggatatattt	ggcagggtat	ggagcagggg	tggcaggcgc	gctcgtggcc	4320
tttaaggctca	ctagcggcga	gatgccctcc	accgaggacc	tggttaacct	actccctgct	4380
atcctctccc	ctggcgccct	agtcgtcggg	gtcgtgtgcg	cagcgatact	gcgtcggcac	4440
gtgggcccag	gggagggggc	tgtgcagtgg	atgaaccggc	tgatagcggt	cgcttcgcgc	4500
ggtaaccacg	tctccccac	gcactatgtg	cctgagagcg	acgctgcagc	acgtgtcact	4560
cagatcctct	ctagtcttac	catcactcag	ctgctgaaga	ggcttcacca	gtggatcaac	4620
gaggactgct	ccacgccatg	ctccggctcg	tggctaagag	atgtttggga	ttggatatgc	4680
acgggtgttg	ctgatttcaa	gacctggctc	cagtccaagc	tcctgcccgc	attgccggga	4740
gtccccctct	tctcatgtca	acgtgggtac	aagggagtct	ggcggggcga	cggcatcatg	4800
caaaccacct	gccccatgtg	agcacagatc	accggacatg	tgaaaaaacg	ttccatgagg	4860
atcgtggggc	ctaggacctg	tagtaacacg	tggcatggaa	cattccccat	taacgcgtac	4920
accacggggc	cctgcacgcc	ctccccggcg	ccaaattatt	ctaggggcgt	gtggcgggtg	4980
gctgctgagg	agtacgtgga	ggttacgcgc	gtgggggatt	tccactacgt	gacgggcatg	5040
accactgaca	acgtaaagtg	cccgtgtcag	gttccggccc	ccgaattctt	cacagaagtg	5100
gatggggtgc	ggttgcacag	gtacgtccta	gcgtgcaaac	ccctcctacg	ggaggagggtc	5160
acattccttg	tcgggctcaa	tcaatacctg	gttgggtcac	agctcccatg	cgagcccga	5220
ccggacgtag	cagtgtcac	ttccatgctc	accgaccctt	cccacattac	ggcggagacg	5280
gctaagcgta	ggctggccag	gggatctccc	ccctccttgg	ccagctcatc	agctatccag	5340
ctgtctgcgc	cttctctgaa	ggcaacatgc	actaccgcgc	atgactcccc	ggacgctgac	5400
ctcatcgagg	ccaacctcct	gtggcgggcag	gagatgggcg	ggaacatcac	ccgcgtggag	5460
tcagaaaata	aggtagtaat	tttggactct	ttcgagccgc	tccaagcggg	ggaggatgag	5520
agggaagtat	ccgttcgggc	ggagatcctg	cggagggtcca	ggaaattccc	tcgagcgatg	5580
cccatatggg	cacgcccggg	ttacaaccct	ccactgttag	agtcctggaa	ggacccggac	5640
tacgtccctc	cagtgggtaca	cgggtgtcca	ttgcgcctcg	ccaaggcccc	tccgatacca	5700
cctccacgga	ggaagaggac	ggttgtcctg	tcagaatcta	ccgtgtcttc	tgcttggcg	5760
gagctcgcca	caaagacctt	cggcagctcc	gaatcgctcg	ccgtcgacag	cggcacggca	5820
acggcctctc	ctgaccagcc	ctccgacgac	ggcgacgcgc	gatccgacgt	tgagtcgtac	5880
tcttccatgc	cccccttga	gggggagccg	ggggatcccc	atctcagcga	cgggtcttgg	5940
tctaccgtaa	gcgagaggac	tagtgaggac	gtcgtctgct	gctcgatgtc	ctacacatgg	6000
acaggcgccc	tgatcacgcc	atgcgctgcg	gaggaaagta	agctgccccat	caacccgttg	6060
agcaactctt	tgtgtcgta	ccacaacatg	gtctacgcca	caacatcccc	cagcgcaagc	6120
ctccggcaga	agaaggtcac	ctttgacaga	ttgcaagtcc	tggatgatca	ttaccgggag	6180
gtactcaagg	agatgaaggc	gaaggcgctcc	acagtttaag	ctaagcttct	atctatagac	6240
gaggcctgca	agctgacgcc	cccacattcg	gccaaatcca	aatttggtta	tggggcaaaag	6300
gacgtccgga	acctatccag	cagggccggt	aaccacatcc	gctccgtgtg	ggaggacttg	6360
ctggaagaca	ctgaaacacc	aattgacacc	accatcatgg	caaaaagtga	ggttttctgc	6420
gtccaaccag	agaagggagg	ccgcaagcca	gctcgcttta	tcgtattccc	agacctggga	6480
gttcgtgtat	gcgagaagat	ggccctttac	gacgtgggtc	ccacccttcc	tcaggccgtg	6540

SEQLIST

atgggctcct	catacggatt	tcaatactcc	cccaagcagc	gggtcgagtt	cctgggtgaat	6600
acctggaaat	caaagaaatg	ccctatgggc	ttctcatatg	acacccgctg	ttttgactca	6660
acggctactg	agagtgcacat	tcgtgttgag	gagtcaattt	accaatgttg	tgacttggcc	6720
cccaggcca	gacaggccat	aaggtcgctc	acagagcggc	tttacatcgg	gggtcccctg	6780
actaactcaa	aagggcagaa	ctgcggttat	cgccgggtgcc	gcgcaagtgg	cgtgctgacg	6840
actagctgcg	gtaataccct	cacatgttac	ttgaaggcca	ctgcagcctg	tcgagctgca	6900
aagctccagg	actgcacgat	gctcgtgaac	ggagacgacc	ttgtcgttat	ctgtgaaagc	6960
gcgggaaccc	aggaggatgc	ggcggcccta	cgagccttca	cggaggctat	gactaggtat	7020
tccgcccccc	ccgggggatcc	gccccaaacca	gaatacgacc	tggagctgat	aacatcatgt	7080
tcctccaatg	tgtcagtcgc	gcacgatgca	tctggcaaaa	gggtatacta	cctcaccctg	7140
gaccccaacca	cccccttgc	acgggctgcg	tgggagacag	ctagacacac	tccaatcaac	7200
tcttggttag	gcaatatcat	catgtatgcy	cccaccctat	gggcaaggat	gattctgatg	7260
actcactttt	tctccatcct	tctagctcaa	gagcaacttg	aaaaagccct	ggattgtctag	7320
atctacgggg	cttgctactc	cattgagcca	cttgacctac	ctcagatcat	tgaacgactc	7380
catggtctta	gcgcattttac	actccacagt	tactctccag	gtgagatcaa	tagggtggct	7440
tcatgcctca	ggaaacttgg	ggtaccaccc	ttgcgaacct	ggagacatcg	ggccagaagt	7500
gtccgcgcta	agctactgtc	ccaggggggg	agggccgcca	cttgtggcag	atacctcttt	7560
aactgggcag	taaggaccaa	gcttaaaactc	actccaatcc	cggccgcgctc	ccagctggac	7620
ttgtctggct	ggttcgtcgc	tggttacagc	gggggagaca	tatatcacag	cctgtctcgt	7680
gccccgacccc	gctggtttcc	gttgtgccta	ctcctacttt	ctgtaggggt	aggcatttac	7740
ctgctcccca	accgatgaac	gggtacgtaa	acactccagg	ccaataggcc	atcctgtttt	7800
tttccctttt	tttttttctt	tttttttttt	tttttttttt	tttttttttt	ttctcctttt	7860
tttttctctt	ttttttcctt	ttctttcctt	tgggtggctcc	atcttagccc	tagtcacggc	7920
tagctgtgaa	aggtccgtga	gccgcttgac	tgcagagagt	gctgatactg	gcctctctgc	7980
agatcaagt						7989

<210> 14

<211> 7989

<212> DNA

<213> Artificial Sequence

<220>

<223> Thepolynucleotide sequence encodes sequences from
HCV H77(pBB7-SN)Replicons

<400> 14

gccagcccc	gattgggggc	gacactccac	catagatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgctcgtgcag	cctccaggac	120
ccccctccc	gggagagcca	tagtgggtctg	cggaaaccgg	gagtacaccg	gaattgcca	180
gacgaccggg	tccttttctt	gatcaacccg	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcgagactgc	tagccgagta	gtgttggggtc	gcgaaaggcc	ttgtgggtact	gcctgatagg	300
gtgcttgcca	gtgccccggg	aggtctcgtg	gaccgtgcac	catgagcacg	aatcctaacc	360
ctcaaaagaaa	aaccaaaagg	cgcgccatga	ttgaacaaga	tggattgcac	gcaggttctc	420
cggccgcttg	ggtagagagg	ctattcggct	atgactgggc	acaacagaca	atcggctgct	480
ctgatgccgc	cgtgttccgg	ctgtcagcgc	aggggcgccc	ggttcttttt	gtcaagaccg	540
acctgtccgg	tgccctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	600
cgacgggcgt	tccttgcgca	gctgtgtctg	acgtgtcac	tgaagcggga	agggactggc	660
tgctattggg	cgaagtgcgc	gggcaggatc	tcctgtcatc	tcaccttgct	cctgcccaga	720
aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	gcttgatccg	gctacctgcc	780
cattcgacca	ccaagcgaac	catcgcatcg	agcgagcacg	tactcggatg	gaagccggct	840
ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttcg	900
ccaggctcaa	ggcgcgcata	cccagcggcg	aggatctcgt	cgtgacctat	ggcgatgcct	960
gcttgccgaa	tatcatgggtg	gaaaatggcc	gcttttcttg	attcatcgac	tgtggccggc	1020
tgggtgtggc	ggaccgctat	caggacatag	cgttggtctac	ccgtgatatt	gctgaagagc	1080
ttggcgccga	atgggctgac	cgcttctctg	tgctttacgg	tatcgccgct	cccgattcgc	1140
agcgcatcgc	cttctatcgc	cttcttgacg	agttcttctg	agtttaaaca	gaccacaacg	1200
gtttccctct	agcgggatca	attccgcccc	tctccctccc	ccccccctaa	cgttactggc	1260
cgaagccgct	tggaaataagg	ccgggtgtgcg	tttgtctata	tgttattttc	caccatattg	1320
ccgtcttttg	gcaatgtgag	ggcccggaaa	cctggccctg	tcttcttgac	gagcattcct	1380
aggggtcttt	cccctctcgc	caaagggaatg	caaggctctgt	tgaatgtcgt	gaaggaagca	1440
gttccctctg	aagcttcttg	aagacaaaaca	acgtctgtag	cgaccctttg	caggcagcgg	1500
aacccccac	gtgcccagac	gtgcccctgc	ggccaaaagc	cacgtgtata	agatacacct	1560
gcaaaggcgg	cacaacccca	gtgccacggt	gtgagttgga	tagttgtgga	aagagtcaaa	1620
tggctctcct	caagcgtatt	caacaagggg	ctgaaggatg	cccagaagggt	acccatttgt	1680
atgggatctg	atctggggcc	tcgggtgcaca	tgctttacat	gtgttttagtc	gaggttaaaa	1740
aacgtctagg	ccccccgaac	cacggggagc	tggtttctct	ttgaaaaaca	cgataatacc	1800

SEQLIST

atggcgccta	ttacggccta	ctcccaacag	acgcgaggcc	tacttggtcg	catcatcact	1860
agcctcacag	gccgggacag	gaaccaggct	gagggggagg	tccaagtggg	ctccaccgca	1920
acacaatctt	tcctggcgac	ctgctgcaat	ggcgtgtgtt	ggactgtcta	tcatggtgcc	1980
ggctcaaaga	cccttgccgg	cccaaagggc	ccaatcacc	aaatgtacac	caatgtggac	2040
caggacctcg	tcggctggca	agcgcccccc	ggggcgcgtt	ccttgacacc	atgcacctgc	2100
ggcagctcgg	acctttactt	ggtcacgagg	catgccgatg	tcattccggg	gcgccggcgg	2160
ggcgacagca	gggggagcct	actctcccc	aggcccgctt	cctacttgaa	gggctcttcg	2220
ggcgggtccac	tgctctgccc	ctcggggcac	gctgtgggca	tctttcgggc	tgccgtgtgc	2280
acccgagggg	ttgcgaaggc	ggtggacttt	gtaccgcgtc	agtctatgga	aaccactatg	2340
cgggtccccg	tcttcacgga	caactcgtcc	cctccggccg	taccgcagac	attccagggtg	2400
gcccattctac	acgcccctac	tggtagcggc	aagagcacta	aggtgcccgg	tgcgatgca	2460
gcccagggtg	ataagggtgt	tgctctgaac	ccgtccgtcg	ccgccaccct	aggtttcggg	2520
gcgtatatgt	ctaaggcaca	tggtatcgac	ccaaacatca	gaaccggggg	aaggaccatc	2580
accacgggtg	ccccctcac	gtactccacc	tatggcaagt	ttcttgccga	cgggtggttg	2640
tctggggggc	cctatgacat	cataatatgt	gatgagtgcc	actcaactga	ctcgaccact	2700
atcctgggca	tcggcacagt	cctggaccac	gcggagacgg	ctggagcgcg	actcgtcgtg	2760
ctcgccaccg	ctacgcctcc	gggatcgggt	accgtgccac	atccaaacat	cgaggagggtg	2820
gctctgtcca	gcactggaga	aatccccctt	tatggcaaa	ccatccccat	cgagaccatc	2880
aaggggggga	ggcacctcat	tttctgccat	tccaagaaga	aatgtgatga	gctcgcccg	2940
aagctgtccg	gcctcggact	caatgctgta	gcatattacc	ggggccttga	tgtatccgtc	3000
ataccaacta	gcggagacgt	cattgtcgta	gcaacggacg	ctctaataac	gggctttacc	3060
ggcgattttc	actcagtgat	cgactgcaat	acatgtgtca	cccagacagt	cgacttcagc	3120
ctggaccgga	cccttcaccat	tgagacgacg	accgtgccac	aagacgcggg	gtcacgctcg	3180
cagcgggcag	gcaggactgg	taggggcagg	atgggcattt	acaggtttgt	gactccagga	3240
gaacggccct	cgggcatggt	cgattcctcg	gttctgtgcg	agtgtctatg	cgcgggcgtg	3300
gcttggtacg	agctcacgcc	cgccgagacc	tcagttaggt	tgcgggctta	cctaaacaca	3360
ccagggttgc	ccgtctgcca	ggaccatctg	gagttctggg	agagcgtctt	tacaggcctc	3420
accacatag	acgcccattt	cttgctccag	actaagcagg	caggagacaa	cttccccctc	3480
ctggtagcat	accaggctac	ggtgtgcgcc	agggtcagg	ctccacctcc	atcgtgggac	3540
caaattgtga	agtgtctcat	acggctaaag	cctacgctgc	acgggccaac	gcccctgctg	3600
tataggctgg	gagccgttca	aaacgaggtt	actaccacac	accccataac	caaatacatc	3660
atggcatgca	tgctggctga	cctggagggt	ctcacagaca	cctgggtgct	ggtaggcgga	3720
gtcctagcag	ctctggccgc	gtattgcctg	acaacaggca	gcgtgggtcat	tgtgggcagg	3780
atcatcttgt	ccggaagcc	ggccatcatt	cccgacaggg	aagtccttta	ccgggagttc	3840
gatgagatgg	aagagtgcgc	ctcacacctc	ccttacatcg	aacaggggat	gcagctcgcc	3900
gaacaattca	aacagaaggc	aatcggggtg	ctgcaaacag	ccaccaagca	agcggagggt	3960
gtgctctccg	tggtgggaat	caagtggcgg	accctcgaag	ccttctgggc	gaagcatatg	4020
tggaatttca	tcagcgggat	acaatattta	gcaggcttgt	ccactctgcc	tggaaccccc	4080
gcgatagcat	cactgatggc	attcacagcc	tctatcacca	gcccgcctac	cacccaacat	4140
accctcctgt	ttaacatctc	gggggggatg	gtggccgccc	aacttgctcc	tcccagcgct	4200
gcttctgctt	tcgtaggcgc	cgccatcgct	ggagcggcgt	ttggcagcat	aggccttggg	4260
aagggtgctt	tggaattttt	ggcaggttat	ggagcagggg	tggcaggcgc	gctcgtggcc	4320
tttaagggtc	tgagcggcga	gatgccctcc	accgaggacc	tggttaacct	actccctgct	4380
atcctctccc	ctggcgccct	agtcgtcggg	gtcgtgtgcg	cagcgatact	gcgtcggcac	4440
gtgggcccag	gggagggggc	tggtcagttg	atgaaccggc	tgatagcggt	cgcttcgcgg	4500
ggtaaccacg	tctcccccc	gcactatggt	cctaagagcg	acgctgcagc	acgtgtcact	4560
cagatcctct	ctagtcttac	catcactcag	ctgctgaaga	ggcttcacca	gtggatcaac	4620
gaggactgct	ccacgccatg	ctccggctcg	tggtctaaag	atgtttggga	ttggatatgc	4680
acggtgttga	ctgattttca	gacctggctc	cagtcctaac	tcctgcccgc	attgccggga	4740
gtccccctct	tctcatgtca	acgtgggtac	aagggtagct	ggcgggggca	cggcacatgc	4800
caaaccacct	gcccattgtg	agcacagatc	accggacatg	tgaaaaacgg	ttccatgagg	4860
atcgtggggc	ctaggacctg	tagtaacacg	tgcatgggaa	cattccccat	taacgcgtac	4920
accacggggc	cctgcacgcc	ctccccggcg	ccaaattatt	ctagggcgct	gtggcgggtg	4980
gctgctgagg	agtacgtgga	ggttacgcgg	gtgggggatt	tccactacgt	gacgggcatg	5040
accactgaca	acgtaaagtg	cccgtgtcag	gttccggccc	ccgaattctt	cacagaagtg	5100
gatgggggtg	ggttgcacag	gtacgtctca	gcgtgcaaac	ccctcctacg	ggaggagggtc	5160
acattcctgg	tcggggtcaa	tcaatacctg	gttgggtcac	agctcccatg	cgagcccga	5220
ccggacgtag	cagtgtctac	ttccatgctc	accgaccctt	cccacattac	ggcggagacg	5280
gctaagcgta	ggctggccag	gggatctccc	ccctcttggg	ccagctcatc	agctatccag	5340
ctgtctgcgc	cttctctgaa	ggcaacatgc	actaccgctc	atgactcccc	ggacgctgac	5400
ctcatcgagg	ccaacctcct	gtggcggcag	gagatgggcg	ggaacatcac	ccgcgtggag	5460
tcagaaaata	aggtagtaat	tttggtactc	ttcgagccgc	tccaagcgga	ggaggatgag	5520
agggaaagtat	ccgtttccggc	ggagatctct	cggaggtcca	ggaaattccc	tcgagcgatg	5580
cccatatggg	cacgcccggg	ttacaacctc	ccagtgttag	agtcctggaa	ggacccggac	5640
tacgtccctc	cagtgggtaca	cggtgttcca	ttgccgcctg	ccaaggcccc	tccgatacca	5700
cctccacgga	ggaagaggac	ggttgtcctg	tcagaattcta	ccgtgtcttc	tgctttggcg	5760
gagctcgcca	caaagacctt	cggcagctcc	gaatcgtcgg	ccgtcgacag	cggcacggca	5820
acggcctctc	ctgaccagcc	ctccgacgac	ggcagcgcgg	gatccgacgt	tgagtcgtac	5880

SEQLIST

tcctccatgc	cccccttga	gggggagccg	ggggatcccg	atctcagcga	cgggtcttgg	5940
tctaccgtaa	gcgaggaggc	tagtgaggac	gtcgtctgct	gctcgaatgc	ctacacatgg	6000
acaggcgccc	tgatcacgcc	atgcgctgcg	gaggaaacca	agctgccccat	caatgcaactg	6060
agcaactctt	tgctccgtca	ccacaacttg	gtctatgcta	caacatctcg	cagcgcaagc	6120
ctgcggcaga	agaagggtcac	ctttgacaga	ctgcagggtcc	tggacgacca	ctaccgggac	6180
gtgctcaagg	agatgaaggc	gaaggcgctcc	acagttaagg	ctaaacttct	atccgtggag	6240
gaagcctgta	agctgacgcc	cccacattcg	gccagatcta	aatttggcta	tggggcaaaag	6300
gacgtccgga	acctatccag	caaggccgtt	aaccacatcc	gctccgtgtg	gaaggacttg	6360
ctggaagaca	ctgagacacc	aattgacacc	accatcatgg	caaaaaatga	ggttttctgc	6420
gtccaaccag	agaagggggg	ccgcaagcca	gctcgcctta	tcgtattccc	agatttgggg	6480
gttcgtgtgt	gcgagaaaat	ggccctttac	gatgtggtct	ccaccctccc	tcaggccgtg	6540
atgggctctt	catacggaat	ccaatactct	cctggacagc	gggtcgaagt	cctgggtgaat	6600
gcctggaaag	cgaagaaatg	ccctatgggc	ttcgcatatg	acaccgctg	ttttgactca	6660
acggtcactg	agaatgacat	ccgtgttgag	gagtcaatct	accaatgttg	tgacttggcc	6720
cccgaagcca	gacaggccat	aagggtcgctc	acagagcggc	tttacatcgg	gggccccctg	6780
actaattcta	aagggcagaa	ctgcggctat	cgccggtgcc	gcgcgagcgg	tgtactgacg	6840
accagctgcg	gtaataccct	cacatgttac	ttgaaggccg	ctgcggcctg	tcgagctgcg	6900
aagctccagg	actgcacgat	gctcgtatgc	ggagacgacc	ttgtcgttat	ctgtgaaagc	6960
gcggggaccc	aagaggacga	ggcgagccta	cgggccttca	cggaggctat	gactagatac	7020
tctgcccccc	ctggggaccc	gccccaaacca	gaatacgact	tggagttgat	aacatcatgc	7080
tcctccaatg	tgtcagtcgc	gcacgatgca	tctggcaaaa	gggtgtacta	tctcaccctg	7140
gacccccaca	cccccttgc	gcgggctgcg	tgggagacag	ctagacacac	tccagtcaat	7200
tcctggctag	gcaacatcat	catgtatgcg	cccaccttgt	gggcaaggat	gatcctgatg	7260
actcatttct	tctccatcct	tctagctcag	gaacaacttg	aaaaagccct	agattgtcag	7320
atctacgggg	cctgttactc	cattgagcca	cttgacctac	ctcagatcat	tcaacgactc	7380
catggcctta	gcgcattttc	actccatagt	tactctccag	gtgagatcaa	taggggtggct	7440
tcatgcctca	ggaaacttgg	ggtaccgccc	ttgcgagtct	ggagacatcg	ggccagaagt	7500
gtccgcgcta	ggctactgtc	ccaggggggg	agggctgcca	cttgtggcaa	gtacctcttc	7560
aactgggcag	taaggaccaa	gctcaaactc	actccaatcc	cggctgcgtc	ccagttggat	7620
ttatccagct	ggttcgttgc	tggttacagc	gggggagaca	tatatcacag	cctgtctcgt	7680
gcccgaaccc	gctggttcat	gtggtgccta	ctcctacttt	ctgtaggggt	aggcatctat	7740
ctactcccca	accgatgaac	gggtacgtaa	acactccagg	ccaataggcc	atcctgtttt	7800
tttccctttt	tttttttctt	tttttttttt	tttttttttt	tttttttttt	ttctcctttt	7860
tttttcctct	ttttttcctt	ttctttcctt	tgggtggctcc	atcttagccc	tagtcacggc	7920
tagctgtgaa	aggtccgtga	gccgcttgac	tgcagagagt	gctgatactg	gcctctctgc	7980
agatcaagt						7989

<210> 15
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> The sequence encodes DNA fragments amplified by using pHCV replb(BB7) as template and the primer pairs

<400> 15
 cgtctgctgc tcgatgtcct ac 22

<210> 16
 <211> 45
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> The sequence encodes DNA fragments amplified by using pHCV replb(BB7) as template and the primer pairs

<400> 16
 ctcccccaac cgatgaacgg gtacgtaaact actccaggcc aatag 45

<210> 17
 <211> 27
 <212> DNA

SEQLIST

<213> Artificial Sequence

<220>

<223> The sequence encodes DNA fragments amplified by using pHCV replb(BB7) as template and the primer pairs

<400> 17

gcactagtac ttgatctgca gagaggc

27

<210> 18

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> The sequence encodes DNA fragments amplified by using pHCV replb(BB7) as template and the primer pairs

<400> 18

ctattggcct ggagtgttta cgtacccgtt catcggttgg gggag

45

<210> 19

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> To generate pBB7/H77NS5B, the HCV type 1a H77 NS5B gene was first amplified by using H77 DNA and primers

<400> 19

cctggacagg cgcactgatc acc

23

<210> 20

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> To generate this sequence, two DNA fragments were amplified by using pHCVreplb(BB7) as template and the primer pairs

<400> 20

gaggacttgc tggaagacac tg

22

<210> 21

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> To generate this sequence, two DNA fragments were amplified by using pHCVreplb(BB7) as template and the primer pairs

<400> 21

caggagtact tgatctgcag agaggc

26

<210> 22

<211> 40

<212> DNA

<213> Artificial Sequence

<220>

SEQLIST

<223> To generate this sequence, two DNA fragments were amplified by using pHCVrep1b(BB7) as template and the primer pairs

<400> 22
ctttagccag ctcacagct atccagttgt ctg'gccttc 40

<210> 23
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> To generate this sequence, two DNA fragments were amplified by using pHCVrep1b(BB7) as template and the primer pairs

<400> 23
gaaggcgcag acaactggat agctgatgag ctggcctaac 40

<210> 24
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> To generate this sequence, the neomycin resistance gene was performed using PCR

<400> 24
tcaagaccga cctgtccggt gccc 24

<210> 25
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> To generate this sequence, the neomycin resistance gene was performed using PCR

<400> 25
cttgagcctg gcgaacagtt cggc 24

<210> 26
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> To generate this sequence, the neomycin resistance gene was performed using PCR

<400> 26
accacagtcc atgcatcac 20

<210> 27
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> To generate this sequence, the neomycin resistance gene was performed using PCR

<400> 27
tccaccaccc tgttgctgta 20

SEQLIST

<210> 28
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> The total cellular was isolated using RNeasy
 Mini Kit (Qiagen)

 <400> 28
 ccggctacct gcccatc 18

 <210> 29
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> The total cellular was isolated using RNeasy
 Mini Kit (Qiagen)

 <400> 29
 ccagatcatc cgatcgacaa g 21

 <210> 30
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> The total cellular was isolated using RNeasy
 Mini Kit (Qiagen)

 <400> 30
 acatcgcatc gagcgagcac gtac 24

 <210> 31
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> DNA primer sequences used in making the chimeric
 replicon constructs. Primers of the invention was
 derived from plasmids.

 <400> 31
 catccagatg tacaccaatg tggac 25

 <210> 32
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> DNA primer sequences used in making the chimeric
 replicon constructs. Primers of the invention was
 derived from plasmids.

 <400> 32
 catgccccga attcttcaca gaattg 26

 <210> 33
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>

SEQLIST

<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

<400> 33
caattctgtg aagaattcgg gcgatg 26

<210> 34
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

<400> 34
gtaacaccaa ttgacactac catc 24

<210> 35
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

<400> 35
gatggtagtg tctattggtg ttac 24

<210> 36
<211> 56
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

<400> 36
gcactagtagt ttgatctgca gagaggccag tatcagcact ctctgcagtc aagcgg 56

<210> 37
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

<400> 37
cttagccag ctcacagct atccagttgt ctgcgcttc 40

<210> 38
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

SEQLIST

<400> 38 gaaggcgag acaactggat agctgatgag ctggctaaac	40
<210> 39	
<211> 45	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.	
<400> 39 gagatggagc ggacagctgg atagccgagg agctggccat agaag	45
<210> 40	
<211> 45	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.	
<400> 40 cttctatggc cagctcctcg gctatccagc tgtccgctcc atctc	45
<210> 41	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.	
<400> 41 cgtctgctgc tcgatgtcct ac	22
<210> 42	
<211> 45	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.	
<400> 42 ctccccaac cgatgaacgg gtacgtaaac actccaggcc aatag	45
<210> 43	
<211> 23	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.	
<400> 43 cctggacagg cgactgatc acc	23

SEQLIST

<210> 44
 <211> 22
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

 <400> 44
 gaggacttgc tggaagacac tg 22

 <210> 45
 <211> 26
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

 <400> 45
 caggagtact tgatctgcag agaggc 26

 <210> 46
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

 <400> 46
 gcactagtac ttgatctgca gagaggc 27

 <210> 47
 <211> 45
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

 <400> 47
 ctattggcct ggagtgttta cgtacccggt catcggttgg gggag 45

 <210> 48
 <211> 24
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

 <400> 48
 tcaagaccga cctgtccggt gccc 24

 <210> 49
 <211> 24

SEQLIST

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

 <400> 49
 cttgagcctg gcgaacagtt cggc 24

 <210> 50
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

 <400> 50
 accacagtcc atgcatcac 20

 <210> 51
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

 <400> 51
 tccaccaccc tgttgctgta 20

 <210> 52
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

 <400> 52
 ccggctacct gcccatc 18

 <210> 53
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

 <400> 53
 ccagatcatc cgatcgacaa g 21

 <210> 54
 <211> 24
 <212> DNA
 <213> Artificial Sequence

SEQLIST

<220>

<223> DNA primer sequences used in making the chimeric replicon constructs. Primers of the invention was derived from plasmids.

<400> 54

acatcgcac gagcgagcac gtac

24